Hardware Rip PS-7000

SERVICE MANUAL

Revision0

Canon

QY8-1266-000

Chapter 1 Safety Instructions

Chapter 2 Product Overview

Chapter 3 Troubleshooting

Chapter 4 Disassembly / Assembly

Chapter 5 Operation Principles

Chapter 6 Parts Catalog

Chapter 1

Safety Instructions

1. To Avoid Hazards to Human Beings

1.1. DC Fan

There is a cooling fan and its ventilation window at the bottom of the PS-7000. Please avoid touching it, as it can get extremely hot especially during or immediately after use of the machine. Also, please be careful not to cover the ventilation window with anything such as rich fur carpet. It can cause malfunction.

1.2. Edges

Please be careful of edges of the External Covers and Stand, when carrying the PS-7000 or servicing it. All the External Covers and Stand are made of metal.

1.3. Power Supply

To avoid electrical shock hazards, be sure to remove the power cord before disassembling the PS-7000 for service. An AC power is directly supplied to the primary side of the Power Supply unit. When supplying power during service, such as to perform the DIAG program (see page 3-10), please take extreme caution.

2. For Correct Operation of PS-7000

2.1. Shock during operation

Please avoid shock to the PS-7000 during operation. As the PS-7000 has an HDD installed, shock to it can destroy the HDD itself as well as the data being processed.

2.2. Power operation

Please avoid turning off the power during operation of the HDD. Power-off during access to the HDD can destroy user-downloaded data such as font data. Turn off the power after the HDD LED is turned off.

2.3. Placement

Please install the PS-7000 on the right position. Laying it or incorrect placing of it can cause unexpected problems.

3. Notes on Installation

3.1. Place of installation

- Avoid placing the PS-7000 on unstable surface or those that can vibrate, to prevent the machine from falling.
- Avoid covering the ventilation window (at the bottom) with anything. Place the machine 10 cm or more away from the wall. Insufficient ventilation can cause malfunction.
- Keep the machine away from humidity, dust, direct sun light, heat or flame, to avoid fire or electrical shock hazards. Use the machine in the operating environment 5 to 35˚C and 20 to 80%RH without any dew condensation.
- Keep the machine away from flammable liquids such as alcohol and thinner, to avoid fire or electrical hazards.

3.2. Power Supply

- Do not touch the power cord with wet hands, to avoid electrical shock hazards.
- Plug in the power cord until it touches the end. Insufficient plugging can cause fire or electrical shock hazards.
- Do not use any power cords other than that packed with the PS-7000. Use of any other power cord can cause fire or electrical shock hazards. Do not use the packed power cord with other equipment.
- Do not modify, pull, or bend the power cord, or place the power cord under heavy materials. Current can leak from where the power cord is scratched, and it can cause fire or electrical shock hazards.
- Avoid multiple wiring with use of Y-shaped cable. It can cause fire or electrical shock hazards.
- Do not put anything around the AC outlet so that the power supply plug can be removed immediately in case of emergency. Delay in removing the plug can cause fire or electrical shock hazards.

3.3. Installation procedures

Please refer to the “Canon Hardware RIP PS-7000 Operator’s Manual.”

3.4. Check after installation

Perform Test Print to check if the machine is installed correctly.

(For details, please see page 3-12.)

4. Special Notes at Maintenance Service

4.1. Main Board

4.1.1. EEPROM

-When replacing the Main Board

> Be sure to remove the EEPROM (IC18) from the socket of the old Main Board and re-install it on the new one.

-When replacing the EEPROM

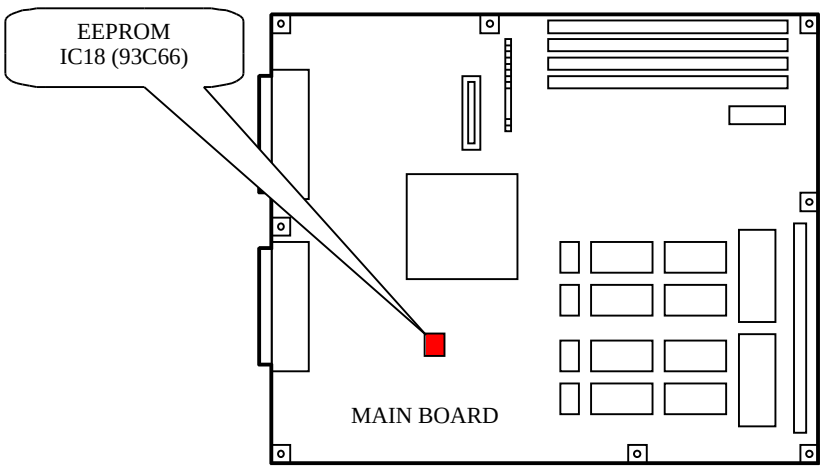
> If customers have downloaded commercial fonts, some of them cannot be downloaded again to a replaced new EEPROM (*1).
> In those cases, a new master disk of the fonts or a new installation disk of the fonts is required.
> If no commercial fonts are downloaded, the EEPROM can be replaced for use without any special requirement.

<Information stored in EEPROM>

- Parameters and values used by the PostScript system
- ID number (*1) used at downloading of fonts

No method is available to see, to back up or to recover those information.

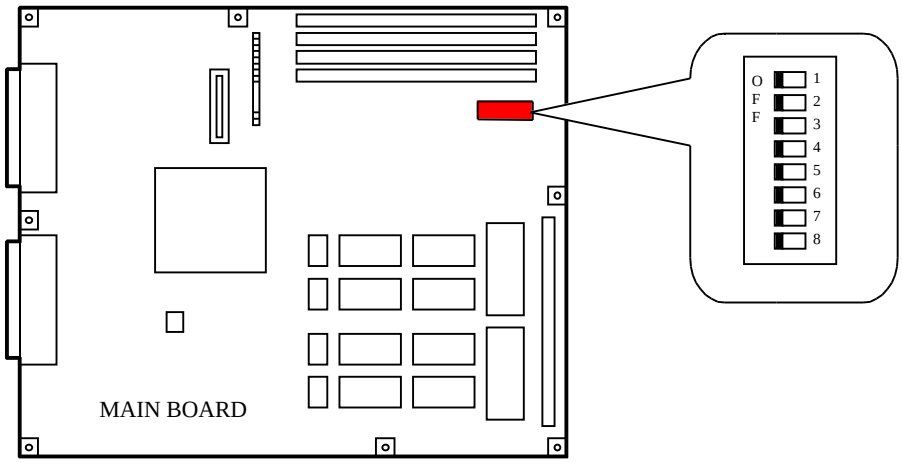
*1: At the first initialization of machine, Adobe PostScript system writes to the EEPROM a value unique to each machine, based on random numbers, as ID number. Some downloadable commercial fonts use this ID number to protect downloading to other machines, by recording the ID number in the font installation disk at the first downloading and by matching it with the one in the EEPROM at every downloading thereafter.



4.1.2. DIP switch

-For normal use

All the DIP switches on the Main Board must be set to OFF.



-DIP switch setting

DIP switch 1 2 3 4 5 6 7 8	When to set
x x x x x x x x	Default settings. Be sure to set all the switches to the OFF position for normal use or at the end of maintenance service.
x x x x x o x x	1 loop of DIAG program. (See page 3-10.)
x x x x x o x o	Infinite loops of DIAG program. (See page 3-10.)
x x x x x x x o	Firmware downloading mode. *1
Others	Not allowed.

X : OFF
O : ON

*1: As for downloading the firmware, a Service Information will be issued if necessary.

4.2. HDD

1) Replacement or format

Before replacing or formatting the HDD, please be sure to notify customers that data downloaded by customers, such as fonts, can be lost.

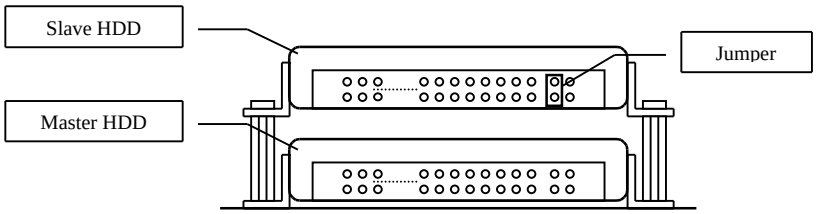
2) Service part HDD

Service part HDD have already been formatted, and there is no need to format it again before use. (For HDD formatting, please see page 4-13.)

Notes: The HDD format used in this manual is for recognition by PostScript system, and it is completely different from that performed under Windows (DOS) or Macintosh.

3) Master / Slave setting

If an additional HDD is installed, the jumper must be set as shown below to identify the slave HDD from the master HDD.



4.3. Network Board

After replacement of the Network Board, network-related parameters such as IP address must be set again. For setting the IP address, use the TCP/IP setting utility (Pnconfig) in the CD-ROM (Canon Hardware RIP PS-7000 CD) packed with the product.

4.4. Prevention against electrostatic destruction

When disassembling the PS-7000, please place it on the conductive mat (or sheet) and put on the wrist belts for a ground. The PCB, memory modules, and HDD used for the PS-7000 are weak to static electricity.

Chapter 2

Product Overview

1. Product Composition

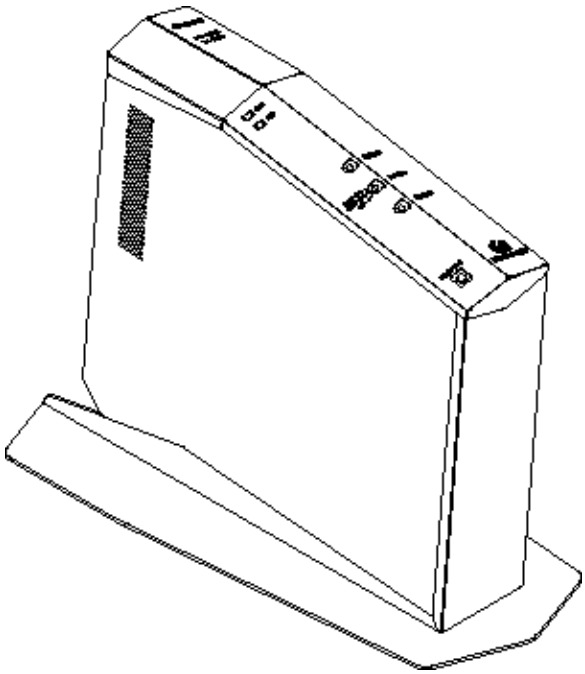
1.1. Product Composition

1.1.1. PS-7000 Main Unit

No.	Model No.	Full Name	Remarks
1	Q52-1004-300	Canon Hardware RIP PS-7000	US(120V)
2	Q52-1004-400		EUR(230V)
3	Q52-1004-500		UK(240V)
4	Q52-1004-600		AS(120V)

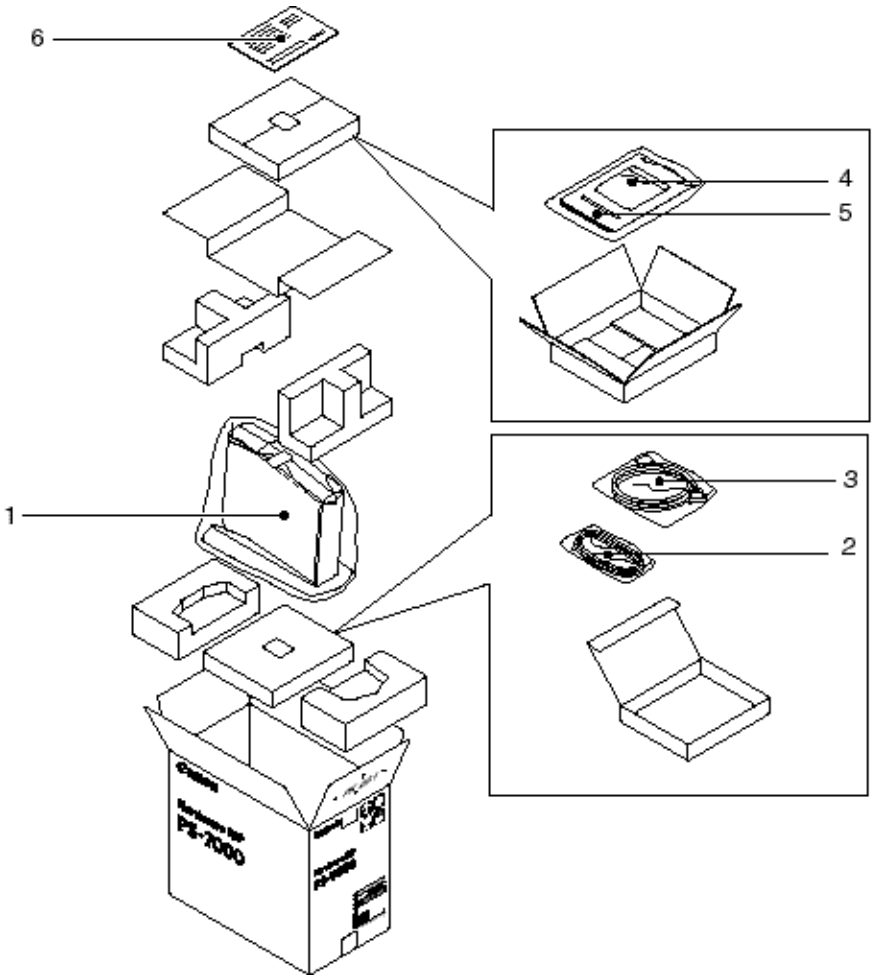
1.1.2. Upgrade Kit

No.	Model No.	Full Name	
1	Q52-1002-010	UPGRADE KIT FOR PS-7000	For all countries



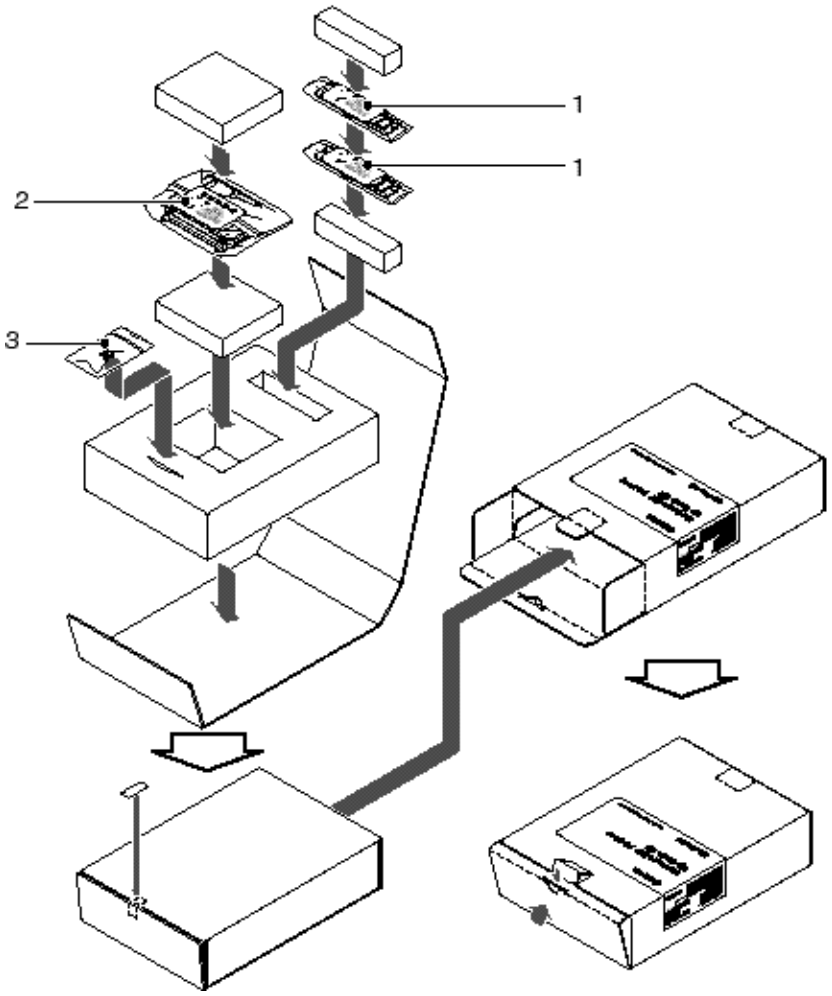
1.2. Packed items / Packing specifications

1.2.1. PS-7000 Main Unit



No.	Item	Q'ty.	Remarks
1	Canon Hardware RIP PS-7000 Main Unit	1	
2	Power Cord	1	
3	Printer Cable	1	
4	Utility CD-ROM	1	
5	Operator's Manual	1	
6	Front Panel Label	1	For UK model only

1.2.2. Upgrade Kit

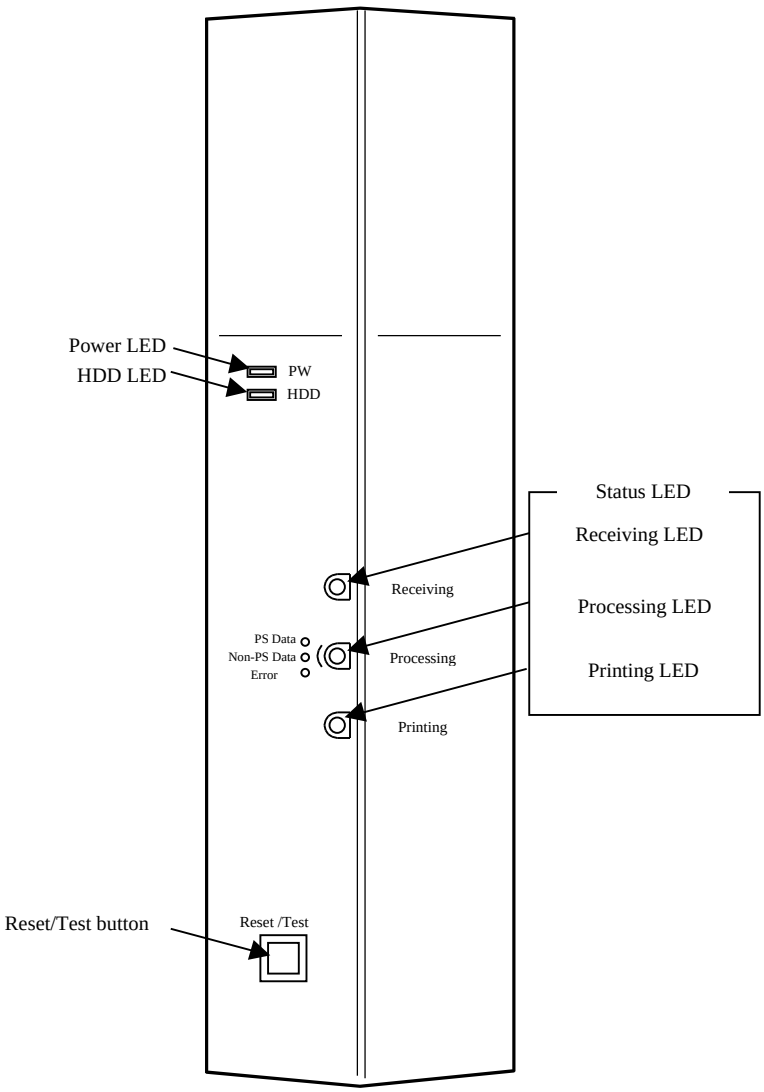


No.	Item	Qty.	Remarks
1	Memory Module 32MB	2	
2	HDD Ass'y	1	HDD 2.1GB (1 unit) HDD Bracket (2 pieces) HDD Jumper Receptacle for Slave (1 piece) M3 x 4 Bind Head Screw (4 pieces)
3	M3 x 5 Bind Head Screw	4	To fix the HDD to the Main Frame.

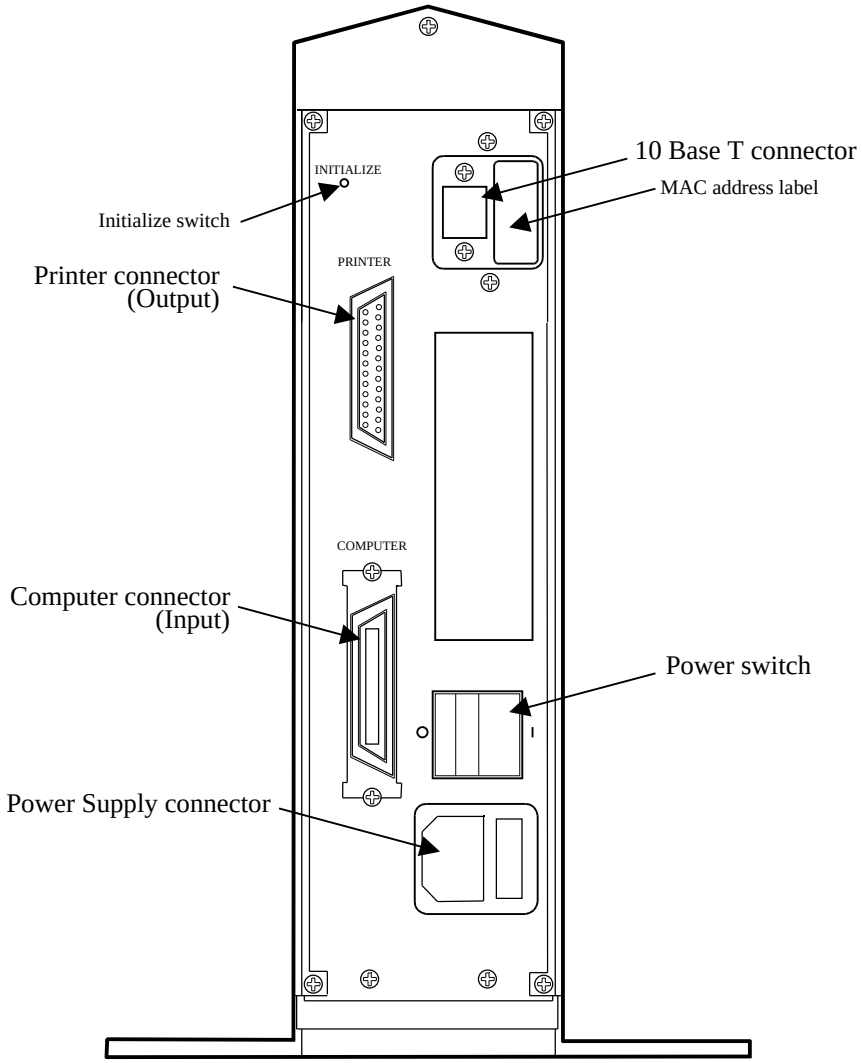
2. Main Unit

2.1. Names

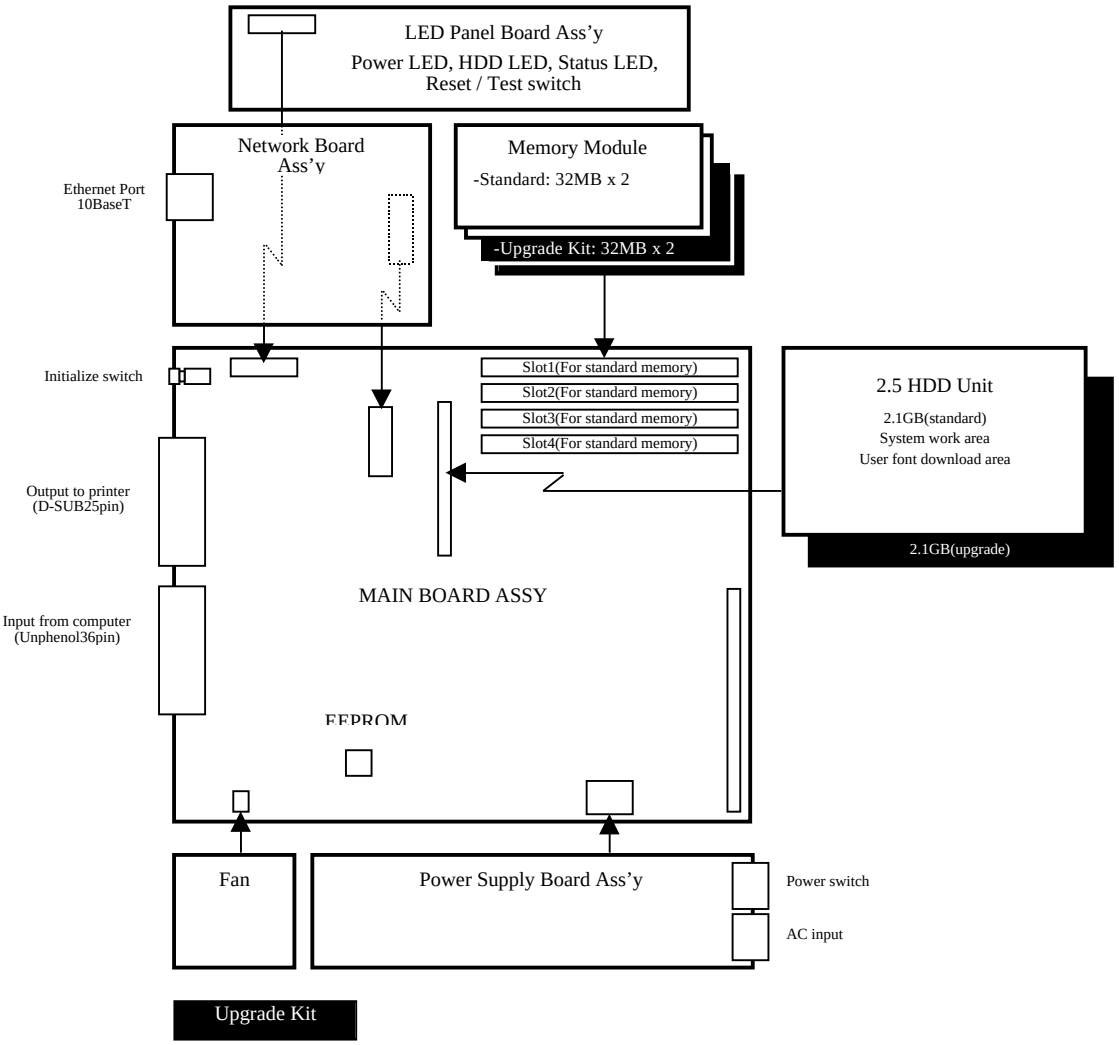
2.1.1. Front view



2.1.2. Rear view



2.2. Unit Configuration



3. Specifications

3.1. PS-7000

Supported printer		Canon Wide-format Graphic Printer BJ-W7000
CPU		NKK R4645 (133MHz)
RAM		Standard:64MB Maximum:128MB (by adding 64MB memory from Upgrade Kit)
HDD		Standard:2.1GB Maximum4.2GB (by adding 2.1GB HDD from Upgrade Kit)
Language	Input	Adobe genuine PostScript Level 1, Level 2, 3
	Output	SRL (Selex Raster Language)
Built-in font		136 Roman fonts (contained in the Program ROM)
Supported OS		Windows95/98,WindowsNT4.0, Mac System 7.5.2,7.5.3,7.5.5,7.6,7.6.1,MacOS 8.0,8.1
Printer driver		AdobePS 8.5.1(Macintosh) AdobePS 4.2.4(Windows95/98) AdobePS 5.1(WindowsNT4.0)
CRD (Color Rendering Dictionary)		CIE - compliant color conversion table (for coated paper, for glossy paper ,for glossy film, and for semi-glossy paper)
Profile		-ICC profile for ColorSync (supporting ColorSync 2.1,2.5):for Macintosh -ICC profile for Kodak ICM:for Windows95/98,Windows NT4.0
Screen		Adobe Brilliant Screens
Host (Input) interface		IEEE1284 parallel interface (supporting compatible and nibble modes) Ethernet interface 10 Base T (TCP / IP, EtherTalk)
Printer (Output) interface		Centronics interface
Power supply		AC100 to 240V, 50 / 60Hz
Operating environment		5 to 35˚C, 20 to 80%RH, No dew condensation allowed.
Certified standards		Safety:UL1950(1995) ,CSA C22.2 No.950-95 ,GS ,CE Marking ,CB EMC:FCC Part15/B/DoC, IC, CE Marking Class B, C-tick
Dimension		180mm(W) x 380mm(D) x 303mm(H)
Weight		5.5kg (Standard configuration without cables)
Others		Reset / Test button Initialize switch

3.2. Utilities in CD-ROM packed with PS-7000

The CD-ROM packed with the PS-7000 is a hybrid one for Windows PC and Macintosh, and it contains utilities listed below.

Name	Macintosh	Windows	Description
Adobe Acrobat Reader	O	O	PDF viewer program
Adobe Type Manager	O	O	Font display program
Post Script3 Font Set	O	O	136 screen fonts
Adobe Post Script Printer Driver	O	O	PostScript printer driver (Macintosh: 8.5.1 / Windows 95/98: 4.2.4 WindowsNT4.0:5.1)
EtherTalk utilities	O	---	TCP / IP utility
PPD file	O	O	Files for printer driver setting
PLEX Color Filter	O	---	Changes CMYK output density. Downloads PostScript language files. Names network printers.
ICC profile for ColorSync 2.5	O	---	6 ICC profiles - PS-7000 heavy weight coated paper - PS-7000 glossy paper - PS-7000 glossy paper 2 - PS-7000 glossy film - PS-7000 semi-glossy paper - PS-7000 back print film
ICC profile for Kodak ICM	---	O	6 ICC(ICM) profiles - PS-7000 heavy weight coated paper(Ps7bjwcp.icm) - PS-7000 glossy paper(Ps7bjwgp.icm) - PS-7000 glossy paper 2(Ps7bjwg2.icm) - PS-7000 glossy film(Ps7bjwgf.icm) - PS-7000 semi-glossy paper(Ps7bjwsg.icm) - PS-7000 back print film(Ps7bjwbf.icm)
Downloader 5.0.5	O	---	Printer font downloading program For downloading of commercial fonts, use the installer attached to those fonts.

3.3. Button / Switch operation

Name	Function	Operation
Reset / Test button (Front panel)	Cancel	Pressing the Reset / Test switch for longer than 1 second will cancel all the jobs being processed. The Power LED flashes green while cancellation is under progress, and all the Status LEDs turn off at the end of cancellation.
	Test print	While the printer is idle, pressing the Reset / Test switch for longer than 1 second will perform test printing.
Initialize switch (Rear panel)	Initialize	Turning on the power while pressing the Initialize switch will reset the EEPROM contents to default, except protected information such as ID number.

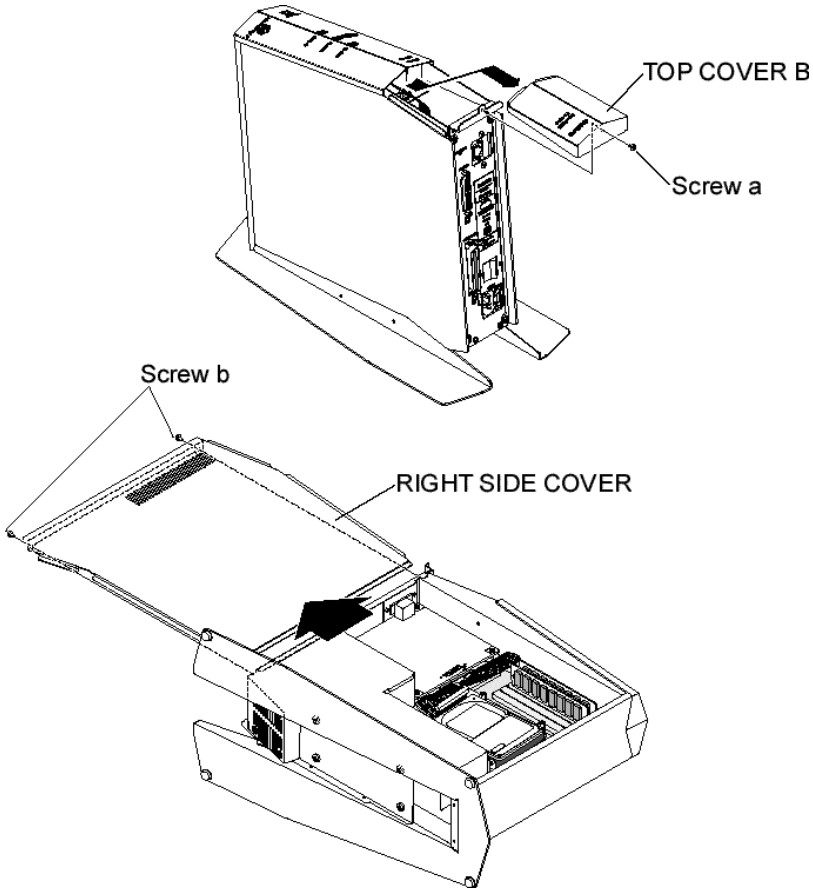
4. Upgrade Kit

4.1. Before installing Upgrade Kit

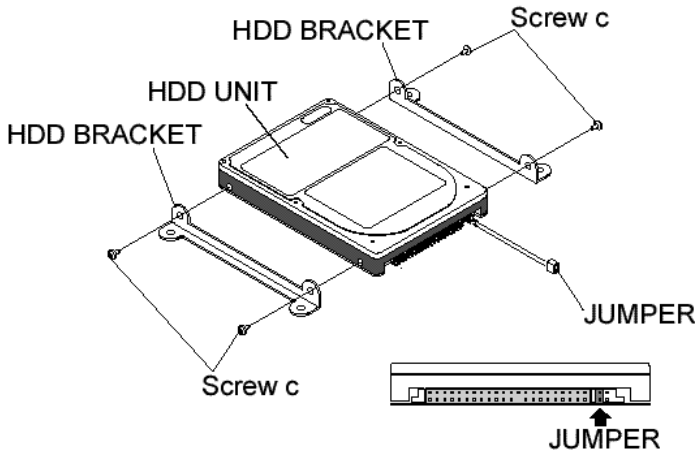
- Perform the DIAG program to confirm that there is no problem with the PS-7000.
  (For DIAG program, please see page 3-10.)

4.2. Installing Upgrade Kit

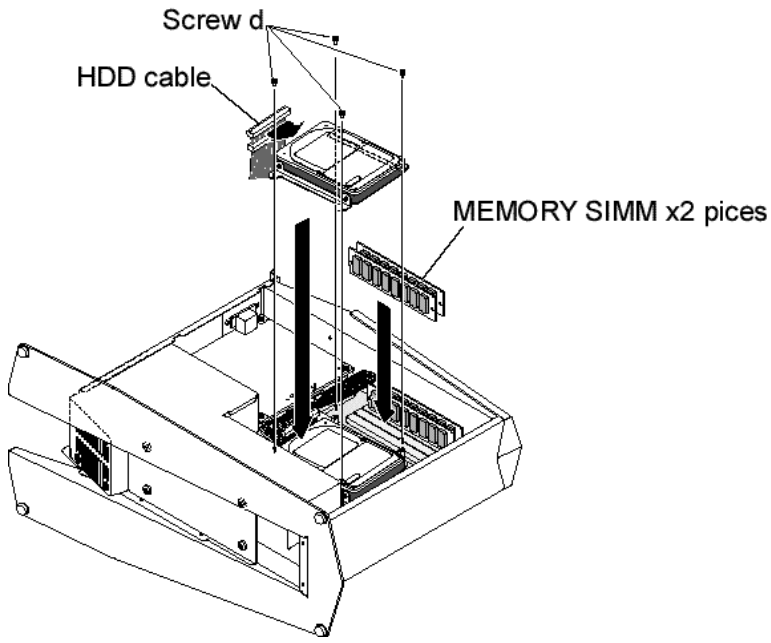
1) Confirm that the HDD LED is turned off. Turn off the power and remove the Power Cord.
2) Remove Screw (a), and Top Cover B. Lay the machine as shown below. Remove two Screws (b) and slide the Right Side Cover to open.



3) Open the Upgrade Kit package and check if every item is included. (See page 2-3.)
Confirm that the jumper receptacle is assigned to Slave, as shown in the figure below.



4) Insert the Memory SIMM in Slot - 3 and Slot - 4. Connect the HDD cable to the HDD, and fix it to the Main Frame with four Screws (d).



5) Perform the DIAG program, by connecting the power cord, setting the DIP switches for DIAG program, and turning on the power, to check if the Upgrade Kit is installed correctly.
6) After the end of DIAG program, return the DIP switches to the OFF position.
7) Slide the Right Side Cover to close, and screw the Top Cover B. (See Step (2).)
8) Perform Test Print, and confirm that the RAM amount is 128MB and that the HD2 amount is 2067MB(Free area is 1851MB). (For test printing, see page 3-12.)

4.3.Others

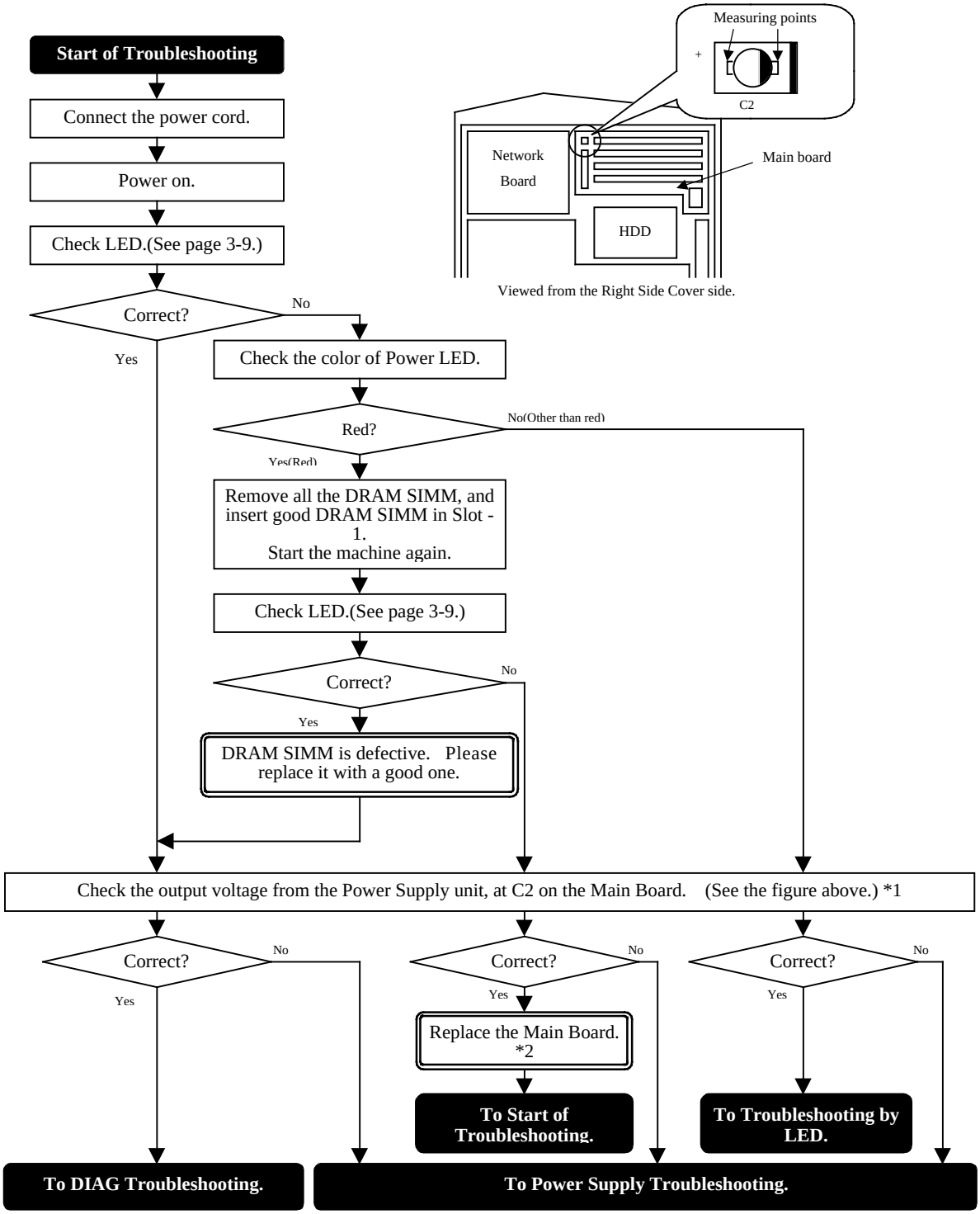
- The HDD in Upgrade Kit is already PostScript - formatted. There is no need to format it again after installation. (For format, please see page 4-13.)

Chapter 3
Troubleshooting

1. Troubleshooting

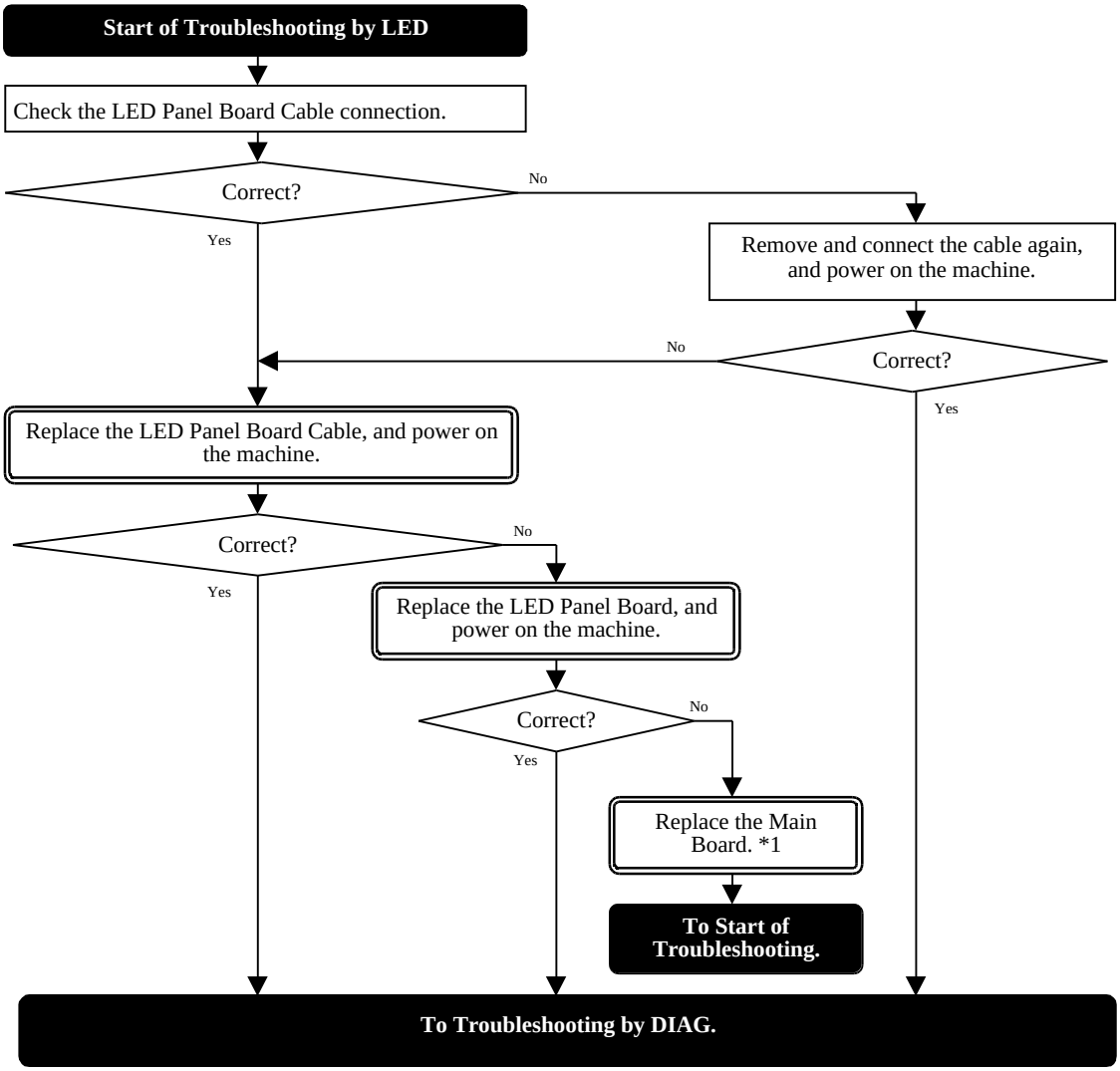
1.1. Troubleshooting

Follow the flowchart below, to identify problem part.



*1: The correct C2 voltage is 5V.
*2: Be sure to use the EEPROM from the original Main Board on the replaced new Main Board. (See page 1-5 for details.)

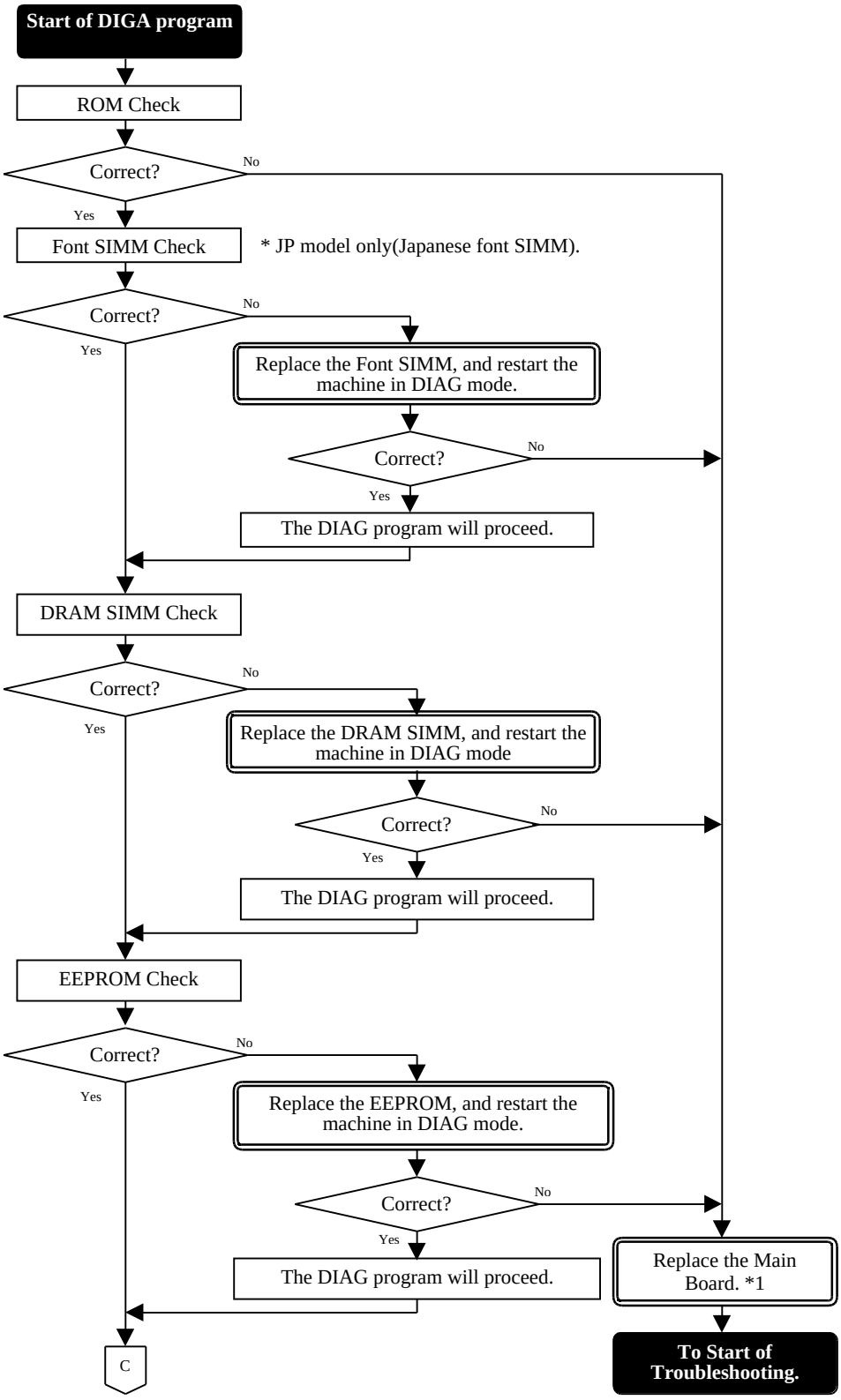
Troubleshooting by LED



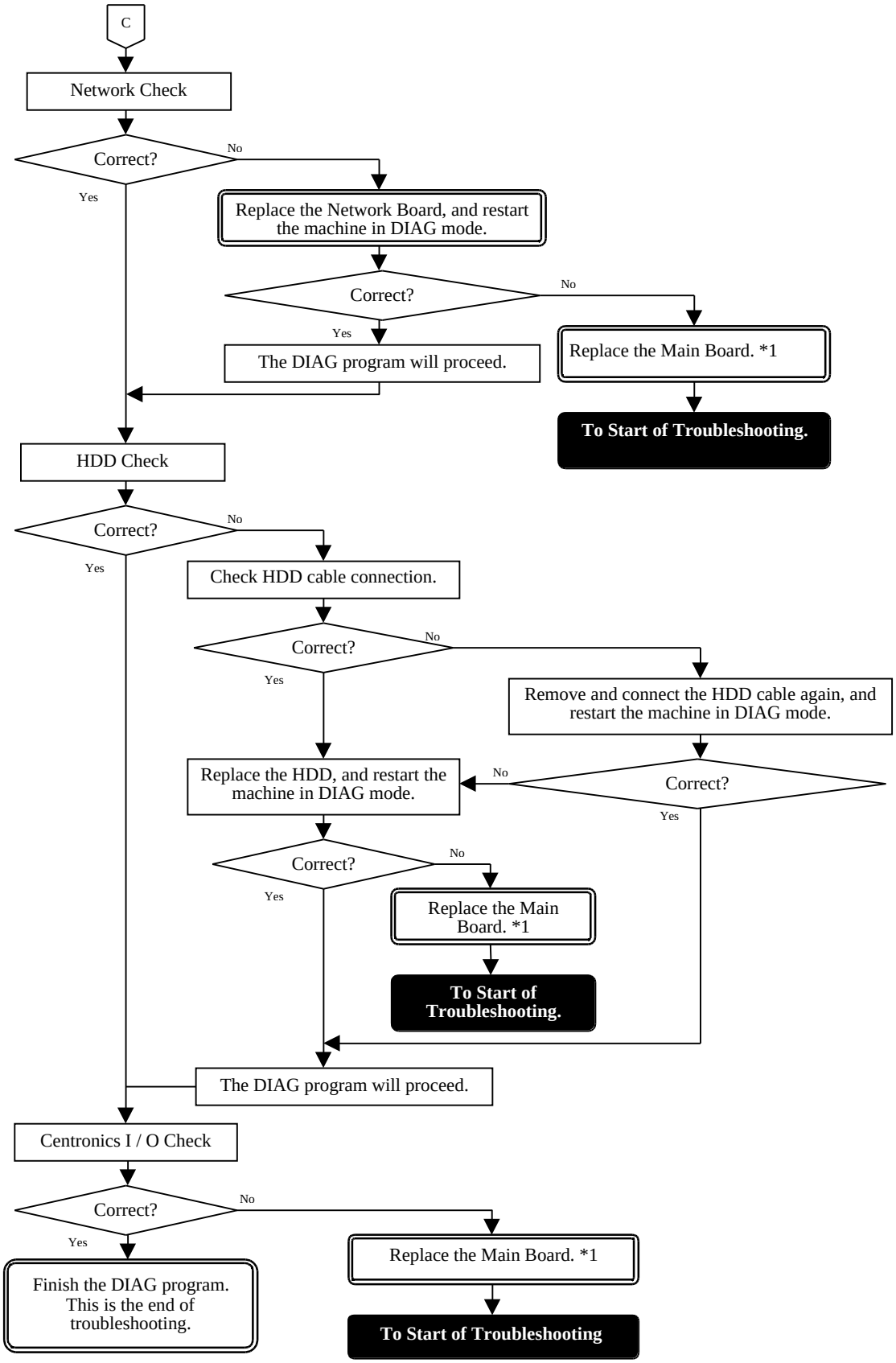
*1: Be sure to use the EEPROM from the original Main Board on the replaced new Main Board. (See page 1-5 for details.)

Troubleshooting by DIAG

For details including how to start the DIAG program, please see page 3-10.

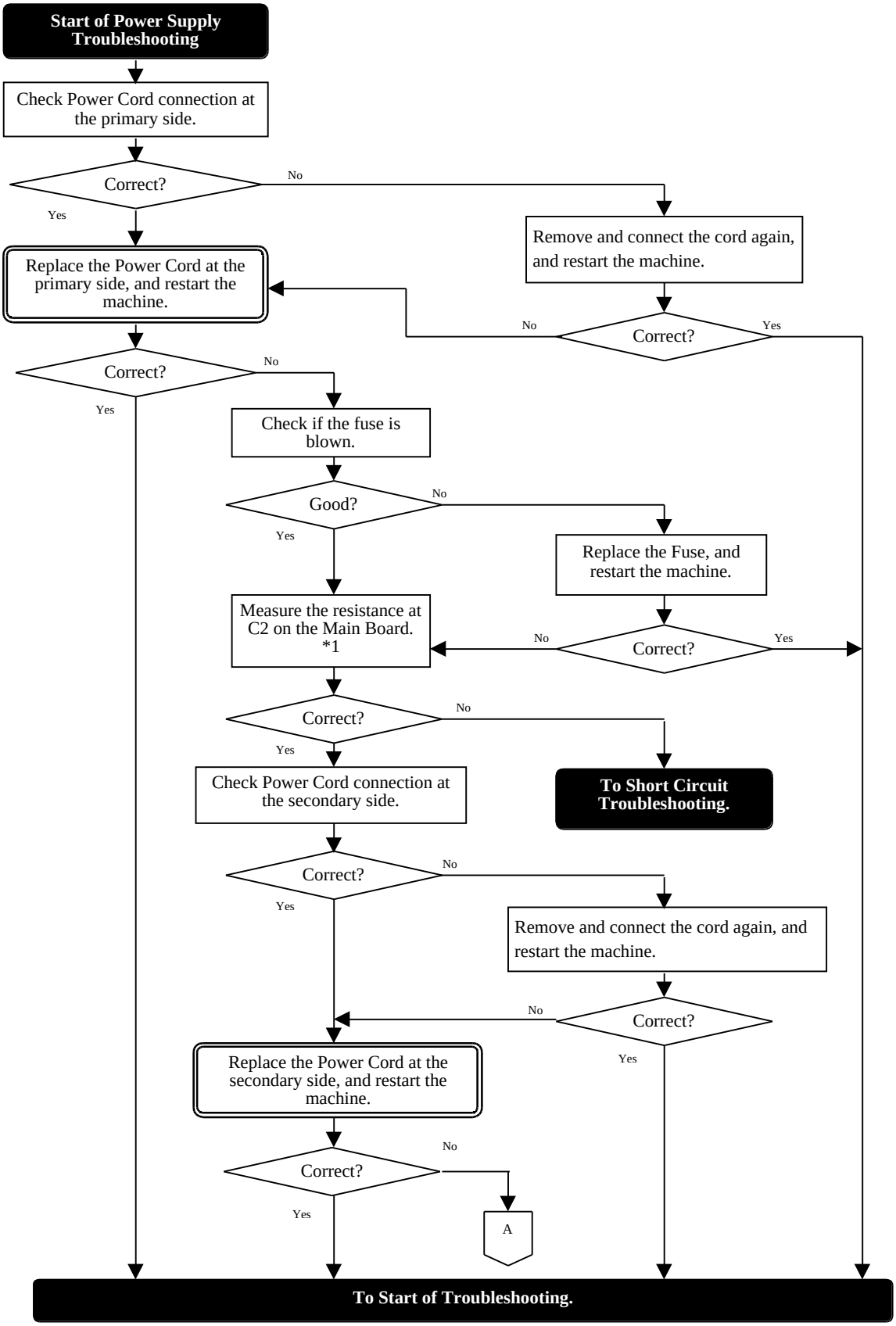


*1: Be sure to use the EEPROM from the original Main Board on the replaced new Main Board. (See page 1-5 for details.)

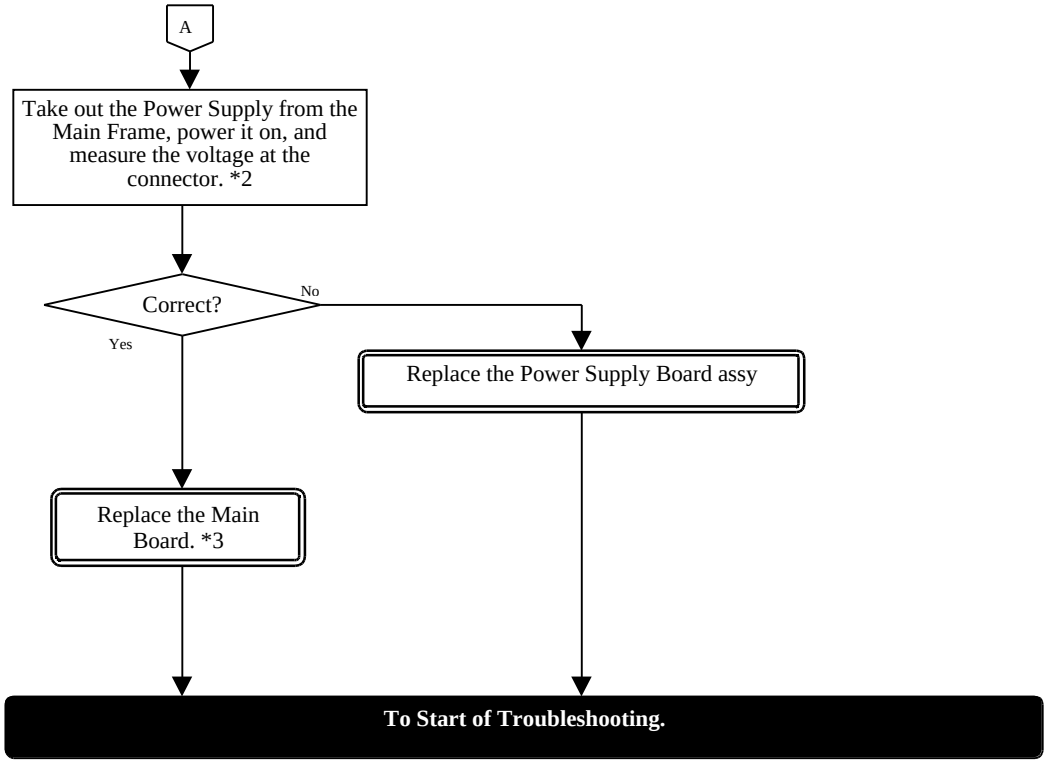


*1: Be sure to use the EEPROM from the original Main Board on the replaced new Main Board. (See page 1-5 for details.)

Power Supply Troubleshooting



*1: Be sure to use the EEPROM from the original Main Board on the replaced new Main Board. (See page 1-5 for details.)

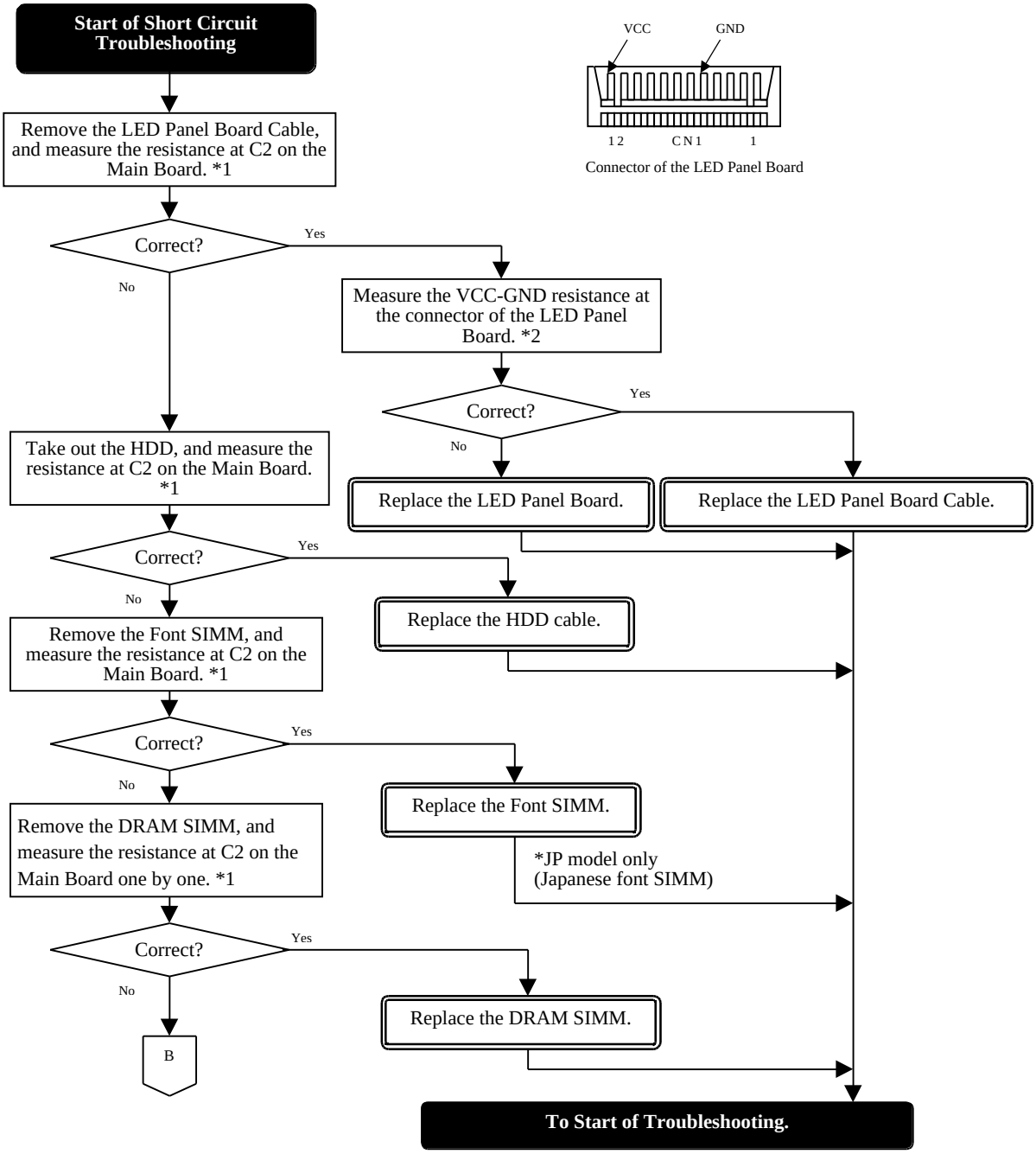


*1: The correct voltage at C2 is 5V.

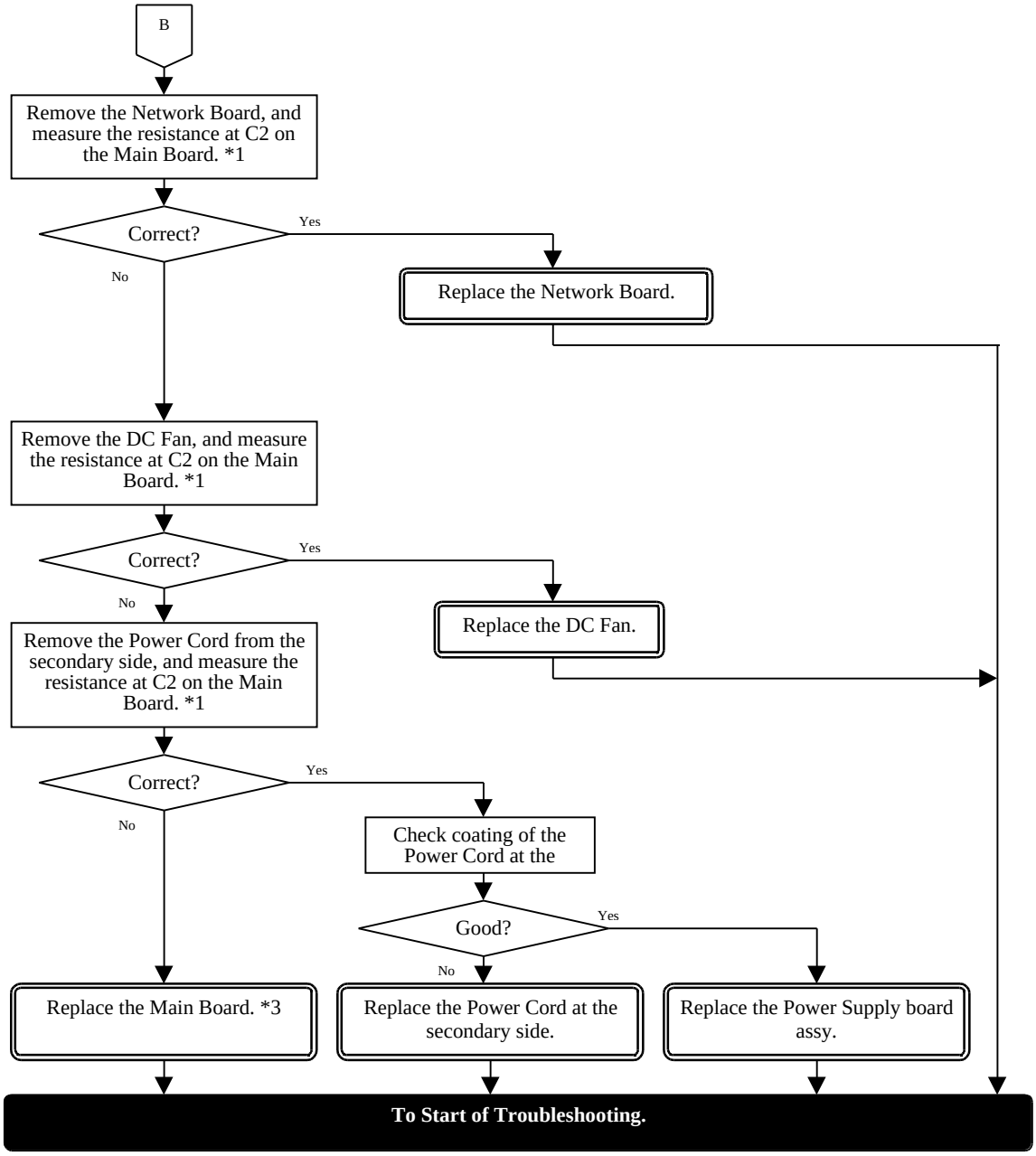
*2: The correct voltage at connector is 5V.

*3: Be sure to use the EEPROM from the original Main Board on the replaced new Main Board. (See page 1-5 for details.)

Short Circuit Troubleshooting



*1: The correct resistance at C2 is 40 to 50-ohm.
*2: Measure the resistance between VCC (12 pin) and GND (5 pin). The correct resistance is 1M-ohm or more.



*1: The correct resistance at C2 is 40 to 50-ohm.

*2: Measure the resistance between VCC (12 pin) and GND (5 pin). The correct resistance is 1M-ohm or more.

*3: Be sure to use the EEPROM from the original Main Board on the replaced new Main Board.
(See page 1-5 for details.)

2. LED Indication

2.1. LED Indication

Conditions	Power LED	HDD LED	Status LED		
			Receiving	Processing	Printing
Normal					
During initialization following power-on	1)The Power LED turns red immediately after power-on. 2)All the LEDs turn orange for 500ms. 3)The Power LED turn green, with the other LEDs turned off.				
During access to HDD	Green	Green	--	--	--
Ready	Green	Off	Off	Off	Off
Receiving job from the host (computer)	Green	--	Green flashing	--	--
Waiting for job from the host (computer)	Green	--	Green	--	--
Processing PS data (job)	Green	--	--	Green flashing	--
Standby for process of PS data (job)	Green	--	--	Green	--
Processing non-PS data (job)	Green	--	--	Orange flashing	--
Standby for process of non-PS data (job)	Green	--	--	Orange	--
Sending data to the printer (Outputting job)	Green	--	--	--	Green flashing
Waiting to send data to the printer (Waiting to output job)	Green	--	--	--	Green
Error					
PS Error	Green	--	--	Red	--
Fatal Error 1 Unexpected error during operation.	Red	Off	Off	Red	Off
Fatal Error 2 Defect detected in self-test at start-up.	Red	Off	Red	Off	Off
Fatal Error 3 No operation of hardware	Red	Off	Off	Off	Off

--: Turning on or off according to jog progress.

How to Handle Errors

PS Error : It is a software error. Check the image data being processed.

Fatal Error 1 : Errors are supposed to arise from the operating environment or be caused by temporary noise. Turn off the power and turn it on again, or check the operating environment.

Fatal Error 2 : Improper insertion of the Memory SIMM is suspected. Perform the DIAG program and identify the problem.

Fatal Error 3 : If the DIAG program cannot be performed, replace a unit one by one to narrow down to the cause of problem.

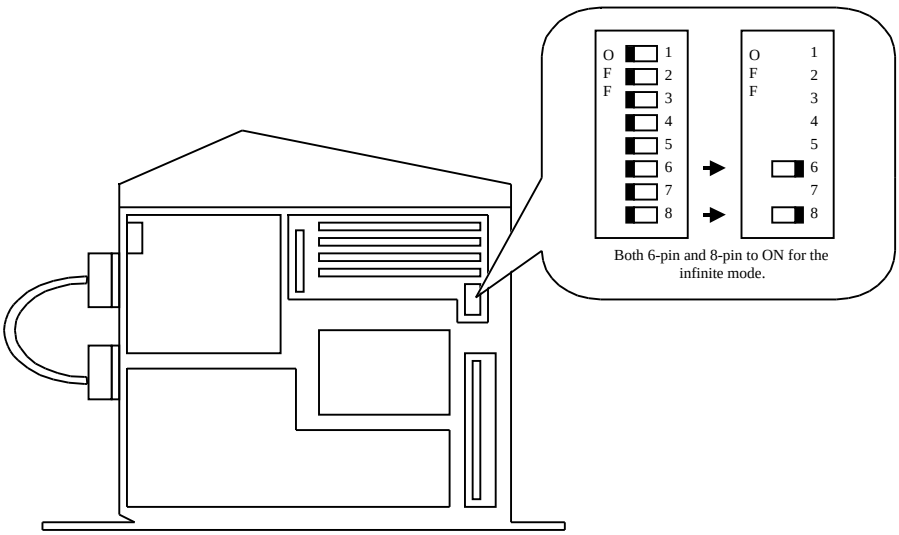
3. DIAG Program

3.1. Overview

For troubleshooting of hardware, the PS-7000 has a diagnostic program that can run in two modes. One is 1-loop mode, and the other is infinite mode in which the DIAG program will be repeated until the power is turned off. Before replacing units or upgrading for service, please perform the DIAG program to see the machine conditions.

3.2. Starting the DIAG program

1) Power off the machine, and remove the Power Cord.
2) Remove the Top Cover and Right Side Cover. Set the DIP switch 6-pin to ON for the 1-loop mode, or 6-pin and 8-pin to ON for the infinite mode.



3) Connect the Power Cord, and connect the Printer Cable for loopback.
4) Power on the machine, and the DIAG program starts.

3.3. Checking results

The DIAG program automatically examines each components of the PS-7000, in the sequence listed below. Progress of the DIAG program is indicated by the Status LED. If an error occurs, the related LED turns red from green, and the DIAG program stops. All the Status LED flash in green at the end of each loop, to indicate there is no problem detected.

No.	Check Item	Power LED	Status LED		
			Receiving	Processing	Printing
1	-ROM Check Examines checksum.	Orange	Green	Off	Off
2	-Font Check(for JP model only) Examines checksum of the Font ROM. If there is no Font ROM installed, this test is skipped.		Off	Green	Off
3	-RAM Check Performs random Write / Read check over the entire RAM area.		Green	Green	Off
4	-EEPROM Check Performs Write / Read check to a certain area.		Off	Off	Green
5	-NET Check Lets the Network Board perform the ROM checksum test of its own, and confirms that no error is returned.		Green	Off	Green
6	-HDD Check Issues a command to the I/F and checks if the HDD responds correctly.		Off	Green	Green
7	-Centronics I/F Check Performs loopback test.		Green	Green	Green
8	-Normal End		Green flashing		

Example of error indication by LED

No.	Check Item	Power LED	Status LED		
			Receiving	Processing	Printing
1	Error in ROM Check	Orange	Red	Off	Off
2	Error in Font Check		Off	Red	Off
3	Error in RAM Check		Red	Red	Off

3.4.Terminating the DIAG program

1) Power off the machine, and remove the Power Cord. The power can be turned off at any time during the DIAG program.
2) Return the DIP switch 6-pin to ON in the 1-loop mode, or 6-pin and 8-pin to ON in the infinite mode.
3) Slide the Right Side Cover to close and attach the Top Cover. Connect the Power Cord, and return the other cables to connection before the DIAG program.

4. Test Print

4.1. Test Print

The PS-7000 has a test printing function in which information of the PS-7000 will be printed directly by a connected printer, without using the host computer. After installing the Upgrade Kit, replacing a unit, or upgrading for service, please perform Test Print to check the PS-7000 conditions.

4.2. Starting Test Print

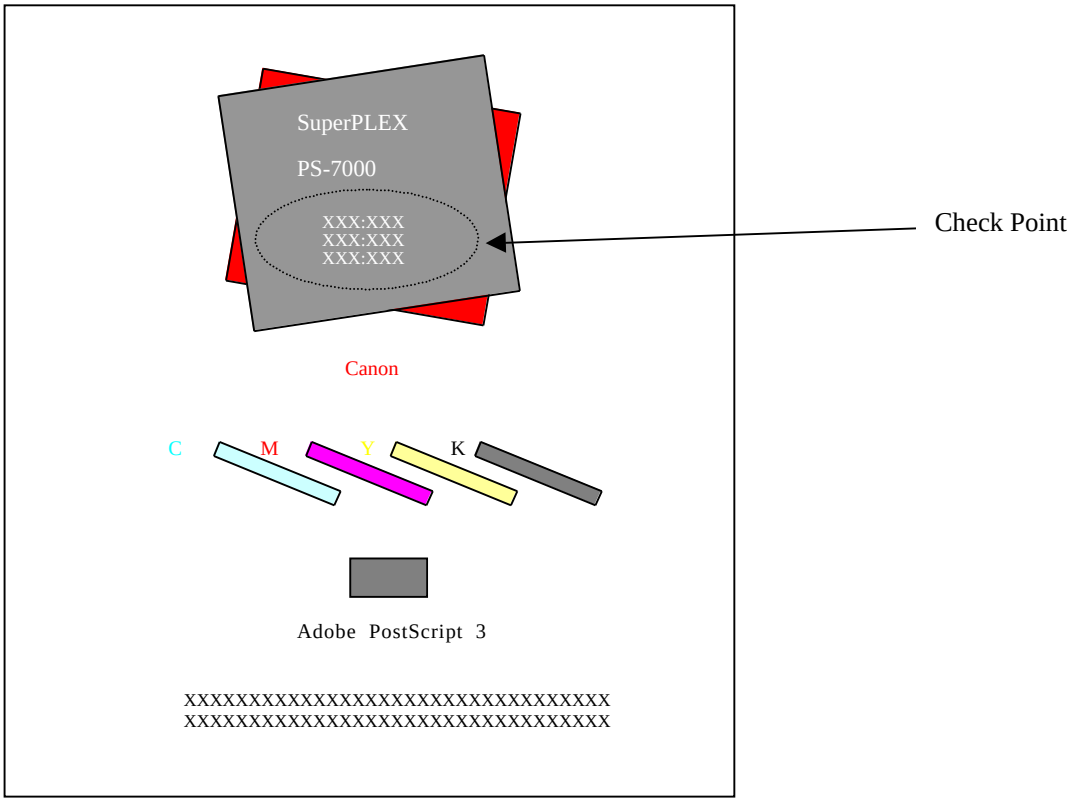
1) Power off the machine, and connect it to the printer.

2) Power on the machine, and wait until the PS-7000 has started up and the printer has turned idle. Press the Reset / Test button for more than 1 second.

3) The PS-7000 will send Test Print data to the printer, and the test pattern will be printed.

4.3. Checking results

Examine the printout in Check Point-1 area.



4.3.1. Check Point

The configuration is printed in this area. An “x” indicates any appropriate number.

ROM Version	:	913289396	-PS-7000 ROM version
RAM Amount	:	*1	-Memory amount
HD1 Amount	:	2067MB	-Built-in HDD capacity
HD1 Free	:	XXXXMB	-Available HDD space
HD2 Amount	:	*2	-Additional HDD capacity
HD2 Free	:	*2	-Available capacity of the additional HDD
Output Device Name	:	BJ-W7000	-Connected printer
<Network Board>			
IP Address	:	XXX.XXX.XXX.XXX	-Network IP address
Node Address	:	*3	-8 digits of Mac address unique to the machine (same as on the label pasted on the Rear Panel)
ROM Version	:	04.28	-Version of ROM on the Network Board
Firmware Option	:	00002812	-Fixed

*1: Memory amount Standard: 64MB
With Upgrade Kit: 128MB

*2: Additional HDD capacity Without Upgrade Kit: 0MB
With Upgrade Kit: 2067MB

Available capacity of the additional HDD
Without Upgrade Kit: 0MB
With Upgrade Kit: xxxMB

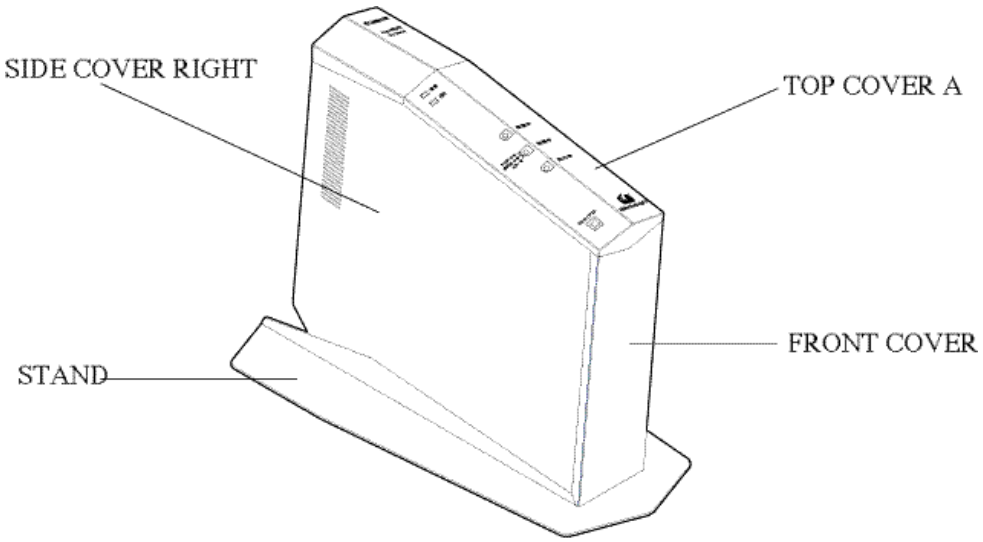
*3: 8 digits of Mac address unique to the machine (same as on the label pasted on the Rear Panel)

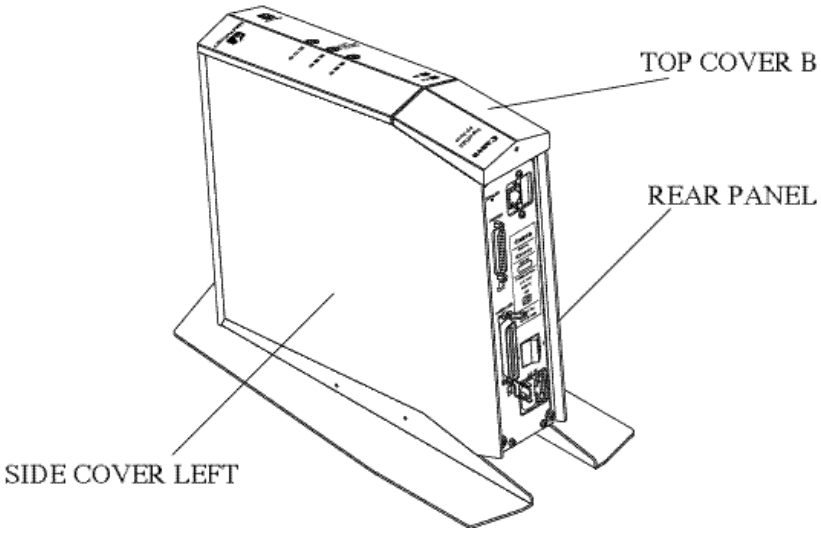
Chapter 4

Disassembly / Assembly

1. Disassembly

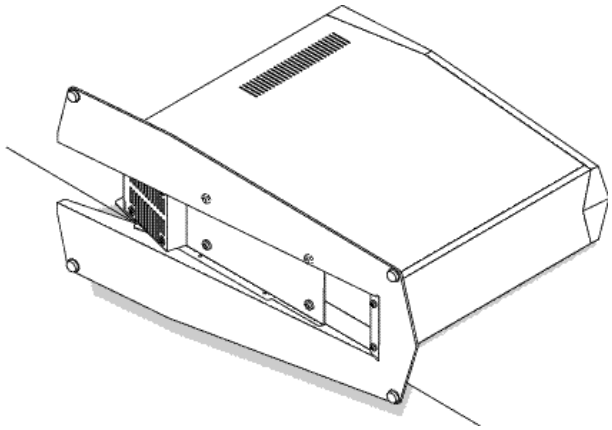
1.1. External appearance





<For your reference>

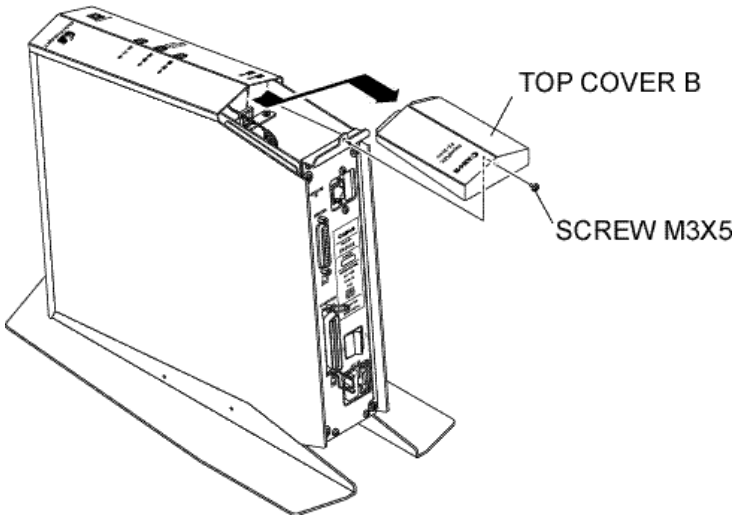
When disassembling the machine with the Stand attached, lay the machine as shown in the figure below so that the Stand is placed along the edge of the desk.



1.2. Procedures for disassembling

Step 1. Removing the Top Cover B

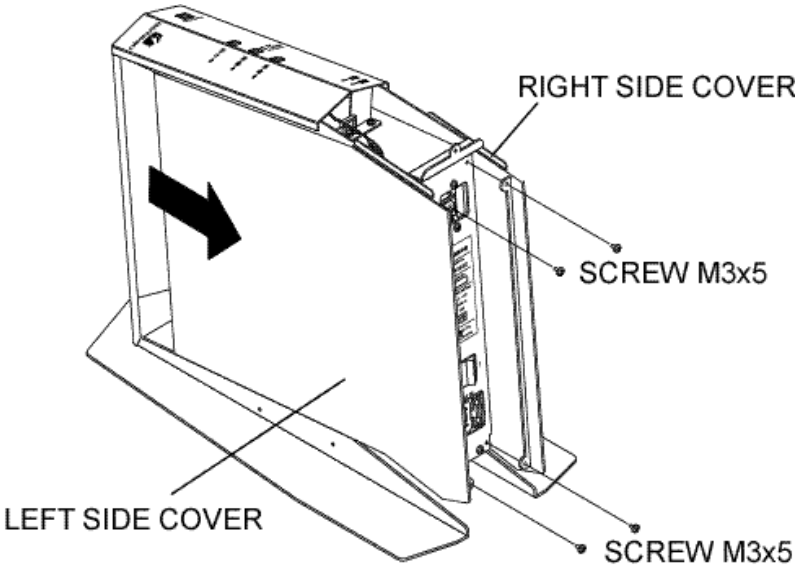
Remove the screw and pull the Top Cover B in the direction indicated by an arrow off the machine.



If only the LED Panel Board Ass'y is to be replaced, proceed to Step 6 to remove the Stand, Step 7 to remove the LED Panel Board Cable, and then Step 9.

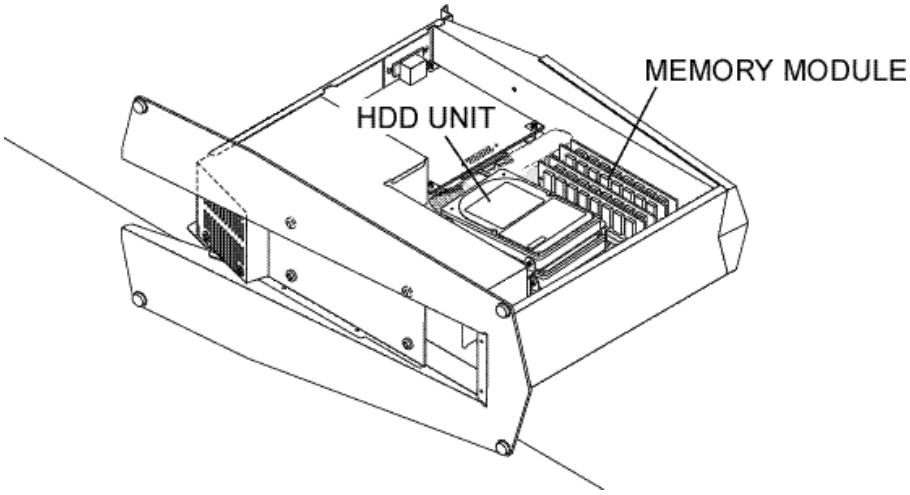
Step 2. Removing the Side Covers

Remove four screws, and slide the Right Side Cover first and then the Left Side Cover off the machine. If the Right Side Cover is still hard to pull out, remove the Stand first referring to "Step 6. Removing the Stand". This makes it easier to remove the covers.



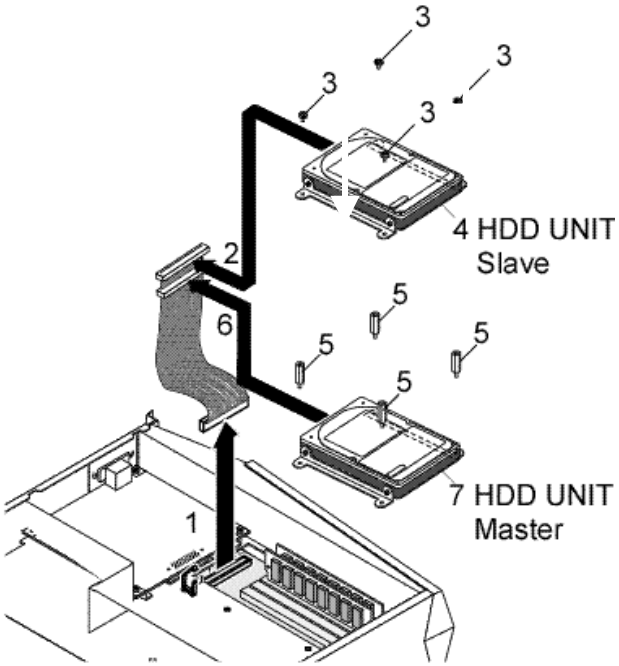
Step 3. Removing the HDD and DRAM SIMM

The standard PS-7000 has one HDD and two DRAM SIMMs. With the Upgrade Kit installed, the machine has two HDDs and four Memory Modules.

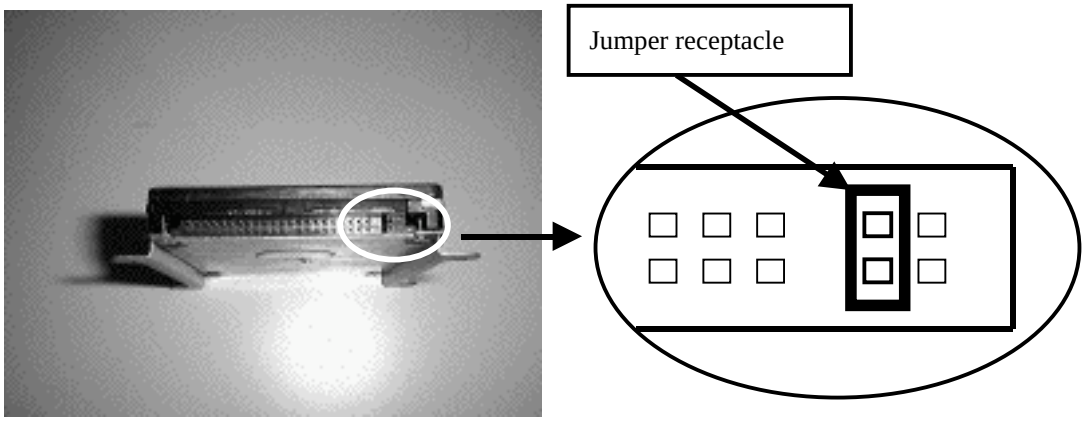


Step 3-1. HDD

Take out the HDD, following the numbers given in the figure below. For the standard configuration (with one HDD installed), skip Steps (2) to (4).

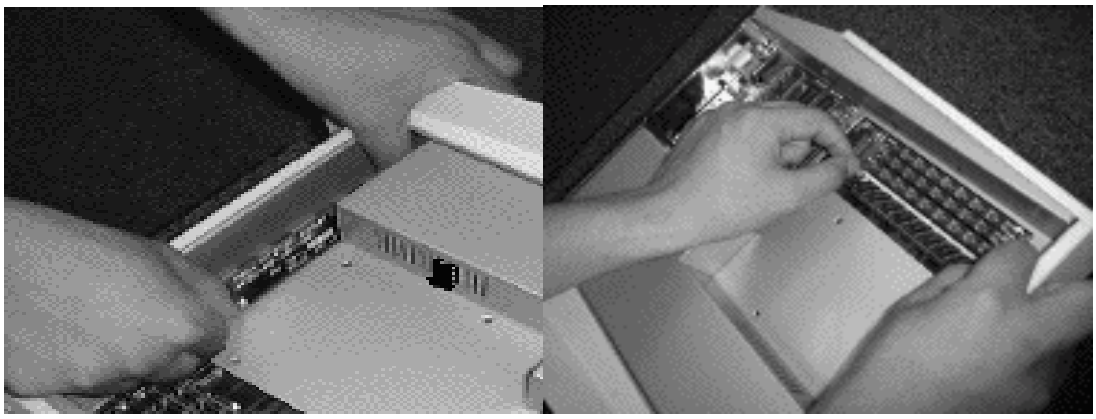


Please be careful not to lose the jumper receptacle attached to the HDD from Upgrade Kit. It is necessary for it to be recognized as Slave HDD (the second HDD). If the HDD from Upgrade Kit is installed without the jumper receptacle, not only the HDD is not recognized as Slave but also customer data in the HDD or the HDD itself can be destroyed.



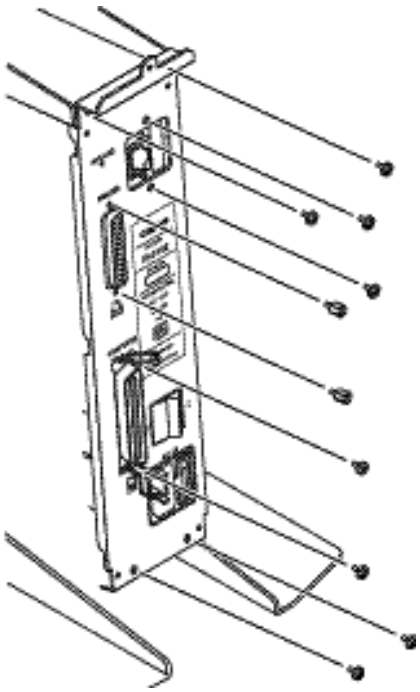
Step 3-2. DRAM SIMM

Click the tabs outward at the both ends of the memory slot to release the DRAM SIMM.



Step 4. Removing the Rear Panel

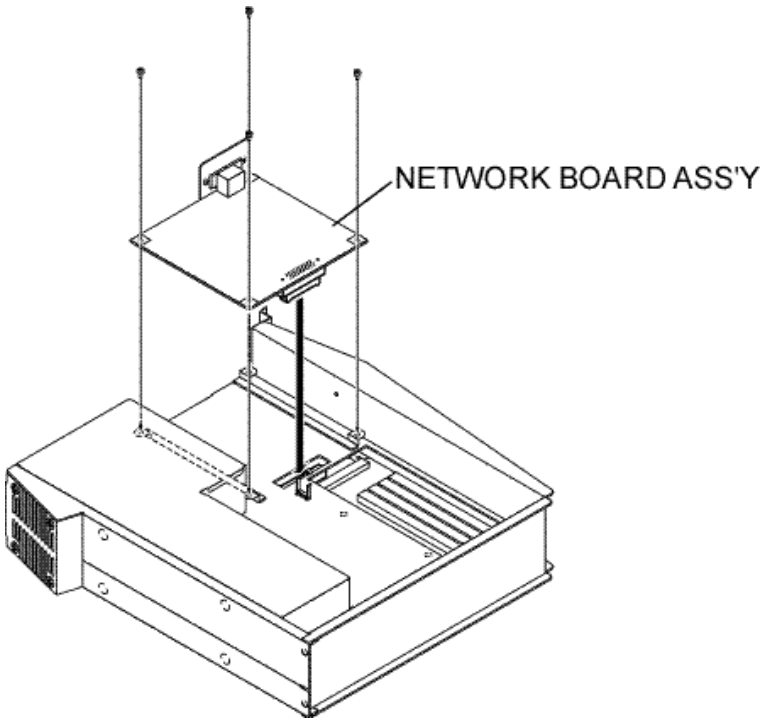
Remove 10 screws and take off the Rear Panel.



Step 5. Removing the Network Board Ass'y

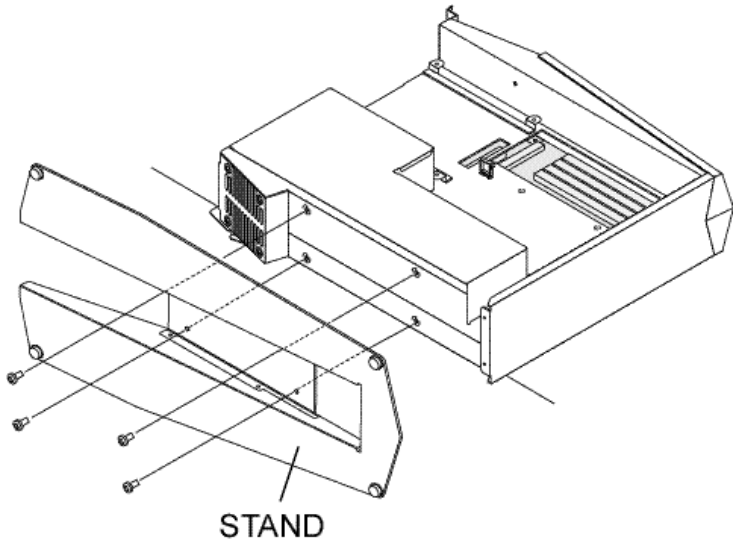
If the Network Board Ass'y is replaced, the network setting must be done after replacement.

Remove four screws and disconnect the Network Board Ass'y from the Main Board Ass'y.



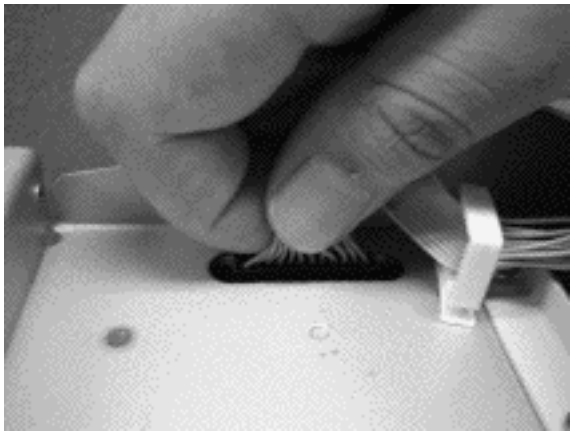
Step 6. Removing the Stand

Remove four screws and take off the Stand.



Step 7. Removing the LED Panel Board Cable

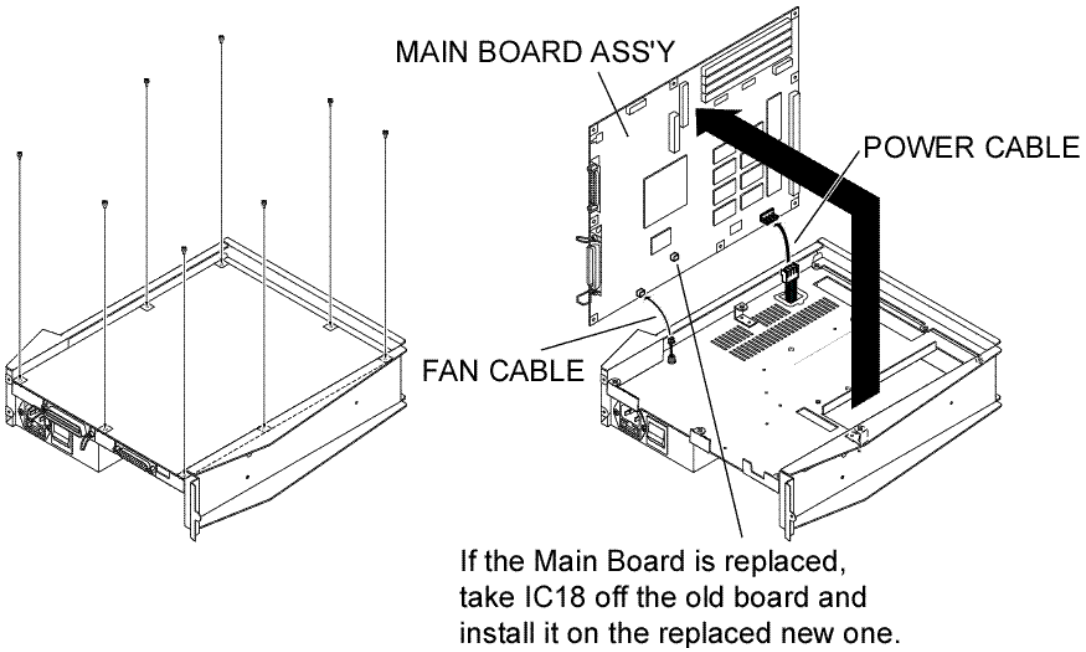
Unplug the LED Panel Board Cable connector from the Main Board Ass'y connector.



Step 8. Removing the Main Board Ass'y

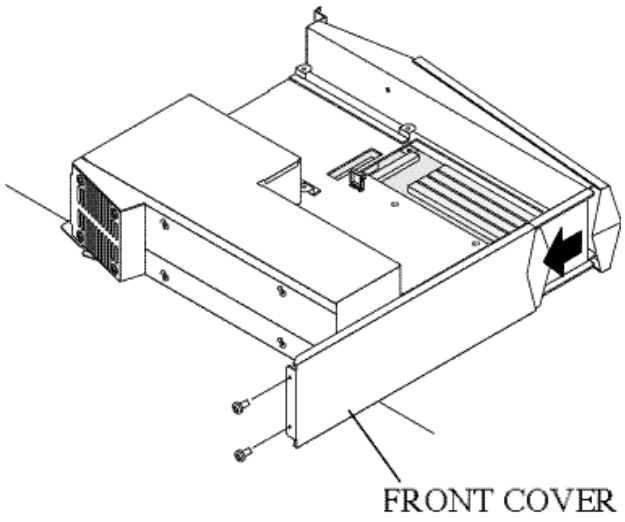
Remove 8 screws, and raise the Main Board Ass'y while holding the one end of it.

Disconnect the Power and Fan cables.



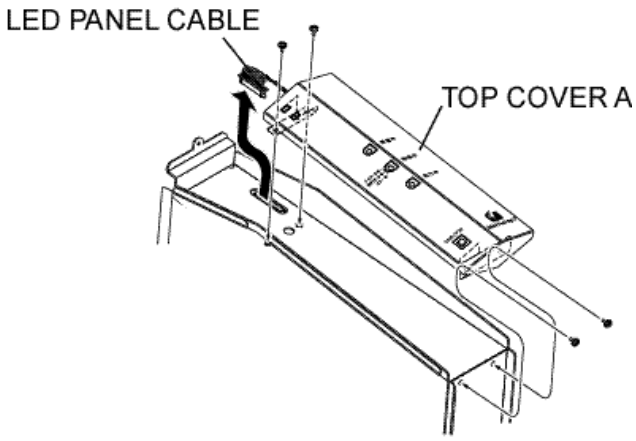
Step 9. Removing the Front Cover

Remove two screws, and slide the Front Cover off the Main Frame.



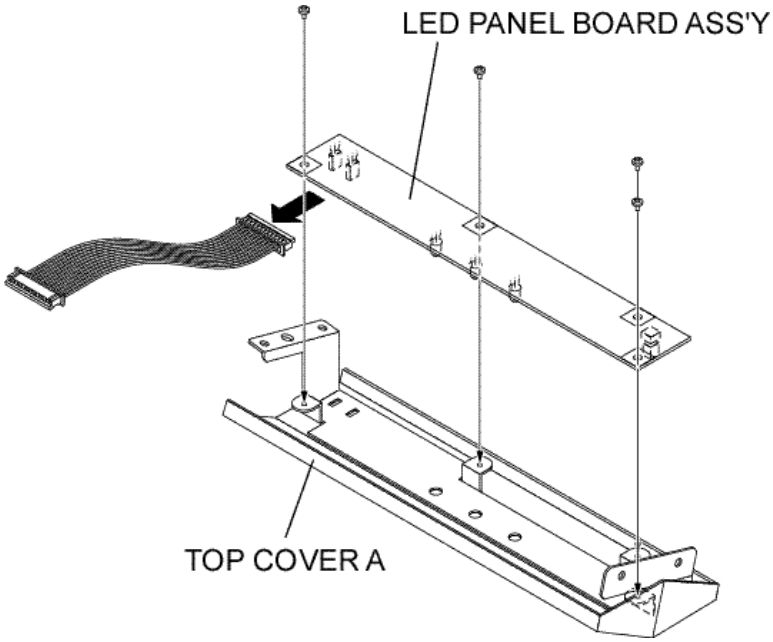
Step 10. Removing the Top Cover A

Disconnect the LED Panel Board Cable, remove four screws, and take off the Top Cover A.



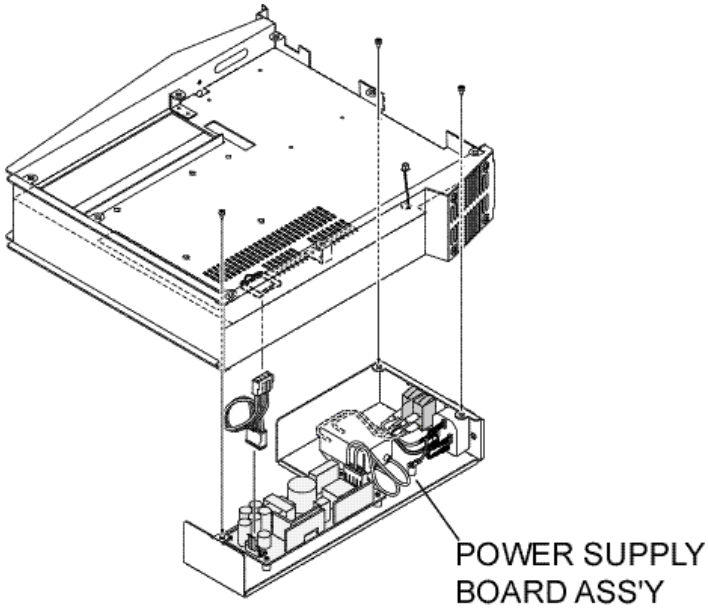
Step 11. Removing the LED Panel Board

Remove four screws, and separate the LED Panel Board from the Top Cover A.



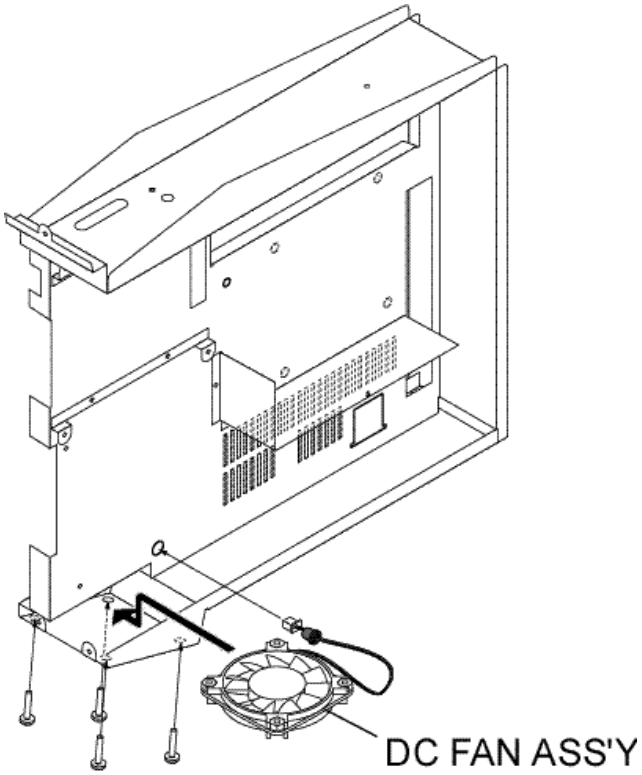
Step 12. Removing the Power Supply Board Ass'y

Remove 3 screws, and take out the Power Supply Board Ass'y.



Step 13. Removing the DC Fan Ass'y

Remove four screws, and take out the DC Fan Ass'y.



Caution: Never touch the wings of DC Fan Ass'y. The core will be out of center and it can cause noise.

2. Assembly

2.1. Procedures for assembling

The PS-7000 can be assembled in the reverse order of disassembling, however, to ensure the accuracy and to protect the HDD from any shocks, some procedures should be changed. In this section, only the difference (from the simple reversed procedures for disassembling) and special cares to be taken are explained.

(1) Follow the Steps 13 to 7.
(2) In Step 6, without fully tightening the screws, put them in the proper places of the Stand. (To ensure the accuracy of assembling the other components into the PS-7000.)
(3) Follow the Steps 5 and 4.
(4) In Step 3, install the DRAM SIMMs (Step 3-2), and skip installation of HDD (Step 3-1).
(5) In Step 2, slide the Left Side Cover into the Main Frame first and then the Right one. While screwing the Left Side Cover, leave the Right one without screws. (To ensure the accuracy of assembling the other components into the PS-7000.)
(6) Tighten the screws of the Stand, which were left not fully tightened in (2), and slide the Right Side Cover off from the Main Frame.
(7) Return to Step 3-1, to install the HDD. If the HDD is replaced, follow the directions on page 1-5, "3.2. HDD." Extreme care should be taken not to apply any shocks to the HDD.
(8) Slide the Right Side Cover into the Main Frame and screw it.
(9) Assemble the Top Cover B, referring to Step 1.

2.2. Check after assembling

No.	Replaced Unit	Check Items
1	Main Board Ass'y	(1) IC18 from the old board must be re-installed on the replaced new board. (2) Perform the DIAG program. It must finish with no errors. (3) Perform Test Print. The Network Board, HDD, and memory must be recognized correctly.
2	Network Board Ass'y	(1) Perform the DIAG program. It must finish with no errors. (2) Set the network again. (3) Perform Test Print. The correct Mac address and IP address must be printed.
3	HDD	(1) Perform the DIAG program. It must finish with no errors. (2) Perform Test Print. The HDD must be recognized.
4	Memory Module SIMM	(1) Perform the DIAG program. It must finish with no errors. (2) Perform Test Print. The memory must be recognized.
5	DC Fan Ass'y	(1) The DC Fan must keep rotating while the power is turned on. (2) No noise must be heard.

3. About HDD Format

3.1. Overview

HDDs under the Adobe PostScript system must be PS-formatted (PostScript-formatted) for use. The original HDDs installed in the PS-7000, HDDs from Upgrade Kit, and service part HDDs are all PS-formatted before shipment to customers. There is no need for PS-format after installing the HDD from Upgrade Kit or after replacing the HDD for service.

However, it may be necessary to perform PS-format if the HDD is not recognized for some reasons. In those cases, before formatting, please notify customers that all the data contained in the HDD will be lost by format.

3.2. Procedures

(1) Perform the DIAG program and confirm that no errors are detected. Be sure to set all the DIP switches to OFF after the end of DIAG program.
(2) With a parallel cable, connect the PS-7000 to the DOS-compatible host computer.
(3) Power on the PS-7000 and host computer.
(4) Insert the PS Format floppy disk into the host computer.
(5) Run the appropriate batch file for PS-format, from among those listed below.

-For Master HDD only : FORMATM.BAT
-For Slave HDD only : FORMATS.BAT
-For both Master and Slave HDDs : FORMAT.BAT

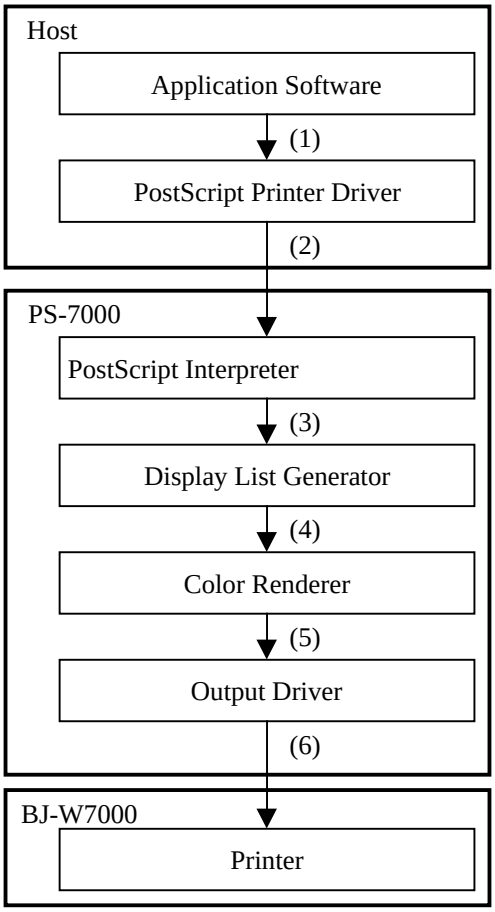
(6) While the batch file is being performed, three LEDs for HDD, Receiving, and Processing are flashing. Completion of PS-formatting will be notified by turning off the HDD LED. It will take about 10 to 20 seconds before the end of formatting.
(7) Connect the PS-7000 to the BJ-W7000 printer and perform Test Print. Confirm that the target (PS-formatted) HDD amount is 2067MB and its available capacity is 1851MB.

Chapter 5
Operation Principles

1. RIP

1.1. Overview

RIP (Raster Image Processor) is the equipment that converts PostScript codes from the desk top publishing system into a printer language. The PS-7000 converts PostScript codes into the page description language, following the chart shown below.



(1) Sends document information such as graphics, character string, photograph, and color, to the PostScript printer driver.

(2) Converts document information into PostScript command, and sends it to the PS-7000.

(3) Analyzes the received PostScript command, and break them down to each object such as simple pictorial element, text, and photograph.

(4) Converts into the PS-7000 internal codes.

(5) Converts into bit map data.

(6) Adds the header of SRL language (exclusive to BJ-W7000) and sends data to the printer.

2. Color Control

2.1. Overview

As color conversion tables, the PS-7000 has been provided with the dedicated CRD (Color Rendering Dictionary) and ICC (International Color Consortium) profile. In addition, the PLEX Color Filter contained in the accessory utilities will offer easy color matching without changing the original data.

1) CRD(Color Rendering Dictionary)

CRD is a table that is used to convert RGB (Red, Green, Blue) output from application software, such as Adobe Photoshop, into CMYK (Cyan, Magenta, Yellow, Black). According to the media type, four different CRDs are included in the PS-7000 firmware as listed below.

No.	Type	Remarks
1.	CRD for heavy coated paper	Installed in the PS-7000 ROM.
2.	CRD for glossy paper	
3.	CRD for glossy film	
4.	CRD for semi-glossy paper	

2) ICC (International Color Consortium) profile

ICC profile is a color conversion profile that is used for ColorSync(Macintosh) and Kodak CMS (Windows). Following six types of ICCs are prepared according to the media type, and they are provided by the CD-ROM "Canon Hardware RIP PS-7000 CD" packed with the PS-7000.

No.	Type	ICC Profile Name	Remarks
1.	ICC for heavy coated paper	BJ-W7000-Heavy Coated Paper	Contained in the CD-ROM packed with the PS-7000.
2.	ICC for glossy paper	BJ-W7000-Glossy Paper	
3.	ICC for glossy paper 2	BJ-W7000-Glossy Paper2	
4.	ICC for glossy film	BJ-W7000-Glossy film	
5.	ICC for back print film	BJ-W7000-BPF	
6.	ICC for semi-glossy paper	BJ-W7000-Semi Glossy	

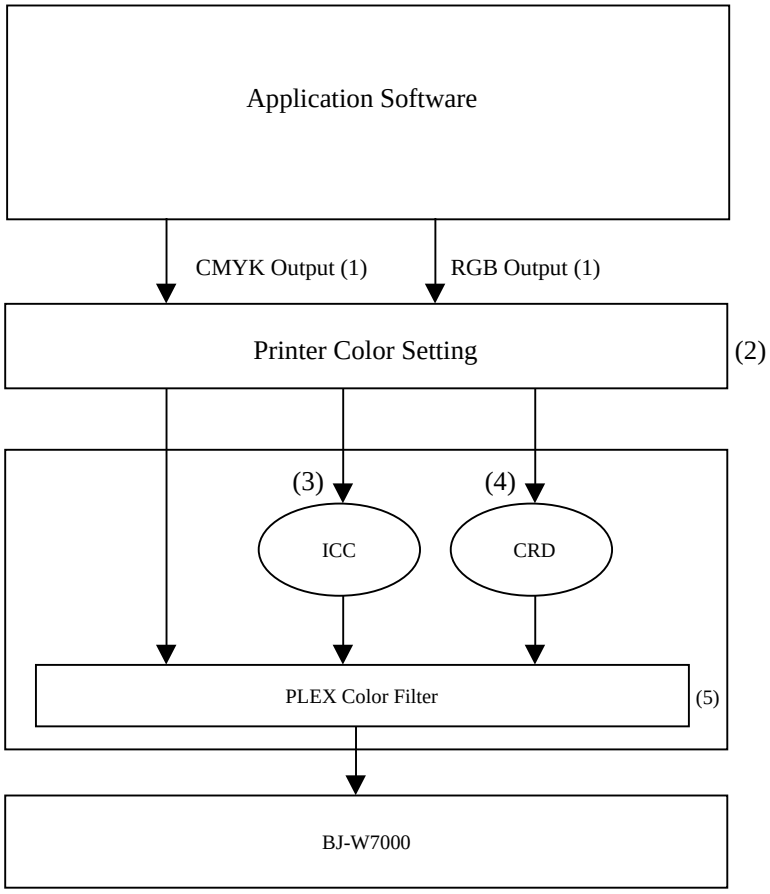
3) PLEX Color Filter

PLEX Color Filter will adjust CMYK color density on each printout, without changing the original data. Unlike complex and flexible color conversion by CRD and ICC profile, simple color adjustment on each printout (or image) is what the PLEX Color Filter offers.

2.2. Color Setting

As an example, color setting with Adobe Photoshop 5.0 (for Macintosh) is explained.

Numbers in the diagram below correspond to those for detailed explanation.



(1) Color conversion by application software

Process of printing data differs depending on whether the data format output from application software is RGB or CMYK. The data format can be converted from RGB to CMYK or vice versa within the application software. (For details how to convert data format, please refer to the Instructions Manual for the application software.)

(2) Color conversion method specified according to printer color setting

According to combination of setting in [File] - [Print] - [Color Matching] and in [File] - [Print] - [Printer Specific Options] dialog boxes under Adobe Photoshop, CRD or ICC profile to be used is determined. The setting and specified color conversion table are valid only for RGB data, and they are invalid for CMYK data.

Color Matching panel		Printer Specific Options	Color Conversion Table to be Selected
Print Color	Printer Profile	Media Types	
Color /Grayscale		Semi-glossy paper	CRD for semi-glossy paper
		Glossy paper	CRD for glossy paper
		Glossy film	CRD for glossy film
		Heavy coated paper	CRD for heavy coated paper
ColorSync Color Matching	In accordance with the specifications in [Printer Properties].	Semi-glossy paper	CRD for semi-glossy paper
		Glossy paper	CRD for glossy paper
		Glossy film	CRD for glossy film
		Heavy coated paper	CRD for heavy coated paper
PostScript Color Matching	Default	Semi-glossy paper	CRD for semi-glossy paper
		Glossy paper	CRD for glossy paper
		Glossy film	CRD for glossy film
		Heavy coated paper	CRD for heavy coated paper
	BJ-W7000 Glossy Paper	In accordance with the specifications in [Printer Profile].	ICC for glossy paper
	BJ-W7000 Glossy Paper 2		ICC for glossy paper2
	BJ-W7000 Semi Glossy Paper		ICC for semi-glossy paper
	BJ-W7000 Glossy Film		ICC for glossy film
	BJ-W7000 Heavy Coated Paper		ICC for heavy coated paper

(3) With the ICC profile selected, RGB data from the application software are converted into CMYK data. The ICC profile is downloaded into the RAM of the PS-7000 by the PS driver.

(4) With the CRD selected, RGB data from the application software are converted into CMYK data. The CRD is already installed in the ROM of the PS-7000.

(5) CMYK colors can be adjusted, using the PLEX Color Filter, if necessary.

2.3. Amount of ink used

In printing with CMYK data, without use of CRD or ICC profile, blur or discoloration may occur due to excess amount of ink put on printout. This kind of problem can be solved by reducing the ink amount through the CMYK adjustment function of the application software. The maximum amount of ink recommended for each type of printing media is listed below for your reference.

- Glossy paper / Glossy film: 240%
- Semi-glossy paper: 240%
- Heavy coated paper: 260%

3. Miscellaneous

3.1. Printing mode setting on the BJ-W7000 printer

The color conversion tables (CRD) installed in the PS-7000 will give the best result on printout when the printing mode on the printer itself is set to Standard. With the printing mode on the printer set to Enhanced or Draft, printout can be different from what is expected, depending on image to be printed. In that case, reset the printing mode to Standard and re-print the image. (For details how to set the printing mode, please refer to the "Canon Hardware RIP PS-7000 Operator's Manual.")

3.2. Specifications for banner printing

Specifications for banner printing depend on application software and OS to be used. The maximum length in which the print quality is guaranteed is different from the maximum printable length. Below in the table is the maximum length printable with the PS-7000 and BJ-W7000.

Environment	Maximum Length
Print quality guarantee	1,250 mm
With Adobe PS driver 8.5.1 (for Macintosh)	6,930 mm
With Adobe PS driver 4.2.4 (for Windows95/98)	3,270 mm
With Adobe PS driver 5.1(for Windows NT4.0)	9,999 mm

3.3. OCF / CID fonts

With the PS-7000, mixed use of the OCF fonts and CID fonts is supported, and thus rich resources of OCF fonts can be utilized. The CID format has precedence over the OCF format for the same font.

The Roman fonts installed in the PS-7000 ROM are the OCF fonts, and there is no CID Roman font at present.

OCF: Original Composite Format, a conventional PS font technology.

CID: Character Identifier-Keyed Font Format, a new PS font technology proposed by Adobe.

3.4.. If printing colors from one file differ on printouts

Under Windows, colors with Photoshop 5.0 or later versions will be slightly different from those with Photoshop before 5.0.

To solve the problem, add a sentence, DISABLERGBTAGS=1, to the related file, and restart Photoshop. (For details, please refer to the Readme file of Photoshop.)

- Photoshop 4.xx : Add DISABLERGBTAGS=1 to the Photos40.ini file.
- Photoshop 3.xx : Add DISABLERGBTAGS=1 to the Photos30.ini file.

3.5. If printing delays

Rotating graphics data with the driver, (such as changing the printing direction from Portrait to Landscape or vice versa), will delay printing. It is because the rotation with the driver will expand the graphics data on the HDD of the PS-7000, not on the RAM where usual data expansion is performed. Data expansion on the HDD will take extremely longer time than on the RAM.

To avoid the problem, rotate graphics data with application software before printing.

3.6. If shapes on printout are deformed

If a square is elongated on printout in the paper feeding direction, improper adjustment of the belt width of the printer is suspected.

To solve the problem, adjust the belt width of the printer, and perform printing again. (For adjustment details, please refer to the “Canon Wide-Format Graphic Printer BJ-W7000 Operator’s Manual” or the “Canon Wide-Format Graphic Printer BJ-W7000 Service Manual.”)

4. System Configuration

System configuration available with the PS-7000 and BJ-W7000 is explained in this section.

4.1. Direct connection

1)Windows 95, Windows 98, Windows NT 4.0

Client	Connection	AXIS	Connection	PS-7000	Connection	BJ-W7000	Printer Driver	Other Utility	Operation Guarantee	Remarks
95	<Centronics>						Windows95 Raster driver	----------	Yes	
	<10BaseT>	Yes	<Centronics>				Windows95 Raster driver	-AXIS LPR module (packed with the AXIS)	Yes	
	<Centronics>			Yes	<Centronics>		Windows95/98 AdobePS Printer driver4.2.4	----------	Yes	
	<10BaseT>			Yes	<Centronics>		Windows95/98 AdobePS Printer driver4.2.4	-Pnconfig (contained in CD-ROM packed with the PS-7000) -LPR module (to be packed with the PS-7000)	No	*1
98	<Centronics>						Windows95 Raster driver	----------	Yes	
	<10BaseT>	Yes	<Centronics>				Windows95 Raster driver	-AXIS LPR module (packed with the AXIS)	Yes	
	<Centronics>			Yes	<Centronics>		Windows95/98 AdobePS Printer driver4.2.4	----------	Yes	
	<10BaseT>			Yes	<Centronics>		Windows95/98 AdobePS Printer driver4.2.4	-Pnconfig (contained in CD-ROM packed with the PS-7000) -LPR module (to be packed with the PS-7000)	No	*1
NT4.0	<Centronics>						WindowsNT4.0 Raster driver	----------	Yes	
	<10BaseT>	Yes	<Centronics>				WindowsNT4.0 Raster driver	Not necessary (as the utility included in OS will be used.)	Yes	
	<Centronics>			Yes	<Centronics>		WindowsNT4.0 AdobePS Printer driver5.1	----------	Yes	
	<10BaseT>			Yes	<Centronics>		WindowsNT4.0 AdobePS Printer driver5.1	Not necessary (as the utility included in OS will be used.)	Yes	

*1: As there is no LPR module for the PS-7000, Windows95/98 is unable to be connected to the PS-7000 by a network using TCP/IP protocol.
(The operation of the LPR module is currently under verification.)

2) Macintosh

Client	Connection	AXIS	Connection	PS-7000	Connection	BJ-W7000	Printer Driver	Other Utility	Operation Guarantee	Remarks
Mac.	Physically, Macintosh cannot be connected directly to the BJ-W7000.						----------	----------	No	
	<Ether Talk>	Yes	<Centronics>				Macintosh Raster driver	-AXIS 540+ utility (packed with the AXIS)	Yes	
	<Ether Talk>	Yes	<Centronics>	Yes	<Centronics>		Macintosh Raster driver	-AXIS 540+ utility (packed with the AXIS)	Yes	*1
	<Ether Talk>			Yes	<Centronics>		Macintosh AdobePS Printer driver8.5.1	----------	Yes	

*1 : To output with the raster driver while the PS-7000 is connected, establish this system configuration.

4.2. Network connection

(1) PS-7000 or AXIS as the printer server

1. Available connection is given in the table below. If the print command is received from multiple client machines at the same time, only the first one is performed and the others are responded as an error to the respective clients, because the printer server is busy. If this occurs, please wait until the server becomes ready for command reception, and issue a print command again.

2. The network utilities and printer driver must be installed in each client machine.

Client	Connection	Printer Server	Connection	BJ-W7000	Driver	Other utility	Operation Guarantee	Remarks
Mac	<Ether Talk+Hub>	PS-7000	<Centronics>		Macintosh AdobePS Printer driver8.5.1	----------	Yes	
	<Ether Talk+Hub>	AXIS	<Centronics>		Macintosh Raster driver	-AXIS 540+ utility (packed with the AXIS)	Yes	
Win95	<10BaseT+Hub>	PS-7000	<Centronics>		Windows95/98 AdobePS Printer driver4.2.4	-Pnconfig (contained in CD-ROM packed with the PS-7000) -LPR module (to be packed with the PS-7000)	No	*1
	<10BaseT+Hub>	AXIS	<Centronics>		Windows95 Raster driver	-AXIS LPR module (packed with the AXIS)	Yes	
Win98	<10BaseT+Hub>	PS-7000	<Centronics>		Windows95/98 AdobePS Printer driver4.2.4	-Pnconfig (contained in CD-ROM packed with the PS-7000) -LPR module (to be packed with the PS-7000)	No	*1
	<10BaseT+Hub>	AXIS	<Centronics>		Windows95 Raster driver	-AXIS LPR module (packed with the AXIS)	Yes	
Win NT4.0	<10BaseT+Hub>	PS-7000	<Centronics>		WindowsNT4.0 AdobePS Printer driver5.1	Not necessary (as the utility included in OS will be used.)	Yes	
	<10BaseT+Hub>	AXIS	<Centronics>		WindowsNT4.0 Raster driver	Not necessary (as the utility included in OS will be used.)	Yes	
Win95+98+NT+Mac	<10BaseT+Hub>	PS-7000	<Centronics>		The printer driver must be installed in each client machine.	The network utilities must be installed in each client machine.	Yes	
	<10BaseT+Hub>	AXIS	<Centronics>				Yes	

(2) Macintosh platform as the printer server

The operation is not assured under this environment.

(3) Windows 95 / 98 platform as the printer server

Client	Connection	Printer Server	Connection	AXIS	PS-7000	Connection	BJ-W7000	Driver	Other utility	Remarks	Operation Guarantee
Mac	<EtherTalk+ Hub>	Win95 Win98	Centronics					----------	----------	*1	No
			10BaseT	Yes	Centronics						
			Centronics		Yes	Centronics					
			10BaseT		Yes	Centronics					
Win95	<10BaseT + Hub>		Centronics					BJ-W7000 Raster driver (for Windows95)	----------		Yes
			10BaseT	Yes	Centronics				-AXIS LPR module (packed with the AXIS)	*2	Yes
			Centronics		Yes	Centronics		Windows95/98 AdobePS Printer driver4.2.4	----------		Yes
			10BaseT		Yes	Centronics			-Pnconfig (contained in CD-ROM packed with the PS-7000) -LPR module (to be packed with the PS-7000)	*2	No
Win98			Centronics					BJ-W7000 Raster driver (for Windows95)	----------		Yes
			10BaseT	Yes	Centronics				-AXIS LPR module (packed with the AXIS)	*2	Yes
			Centronics		Yes	Centronics		Windows95/98 AdobePS Printer driver4.2.4	----------		Yes
			10BaseT		Yes	Centronics			-Pnconfig (contained in CD-ROM packed with the PS-7000) -LPR module (to be packed with the PS-7000)	*2	No
WinNT			Centronics					BJ-W7000 Raster driver (for Windows95,NT4.0)	----------		Yes
			10BaseT	Yes	Centronics				-AXIS LPR module (packed with the AXIS)	*2	Yes
			Centronics		Yes	Centronics		WindowsNT4.0 AdobePS Printer driver5.1 Windows95/98 AdobePS Printer driver4.2.4	----------		Yes
			10BaseT		Yes	Centronics			-Pnconfig (contained in CD-ROM packed with the PS-7000) -LPR module (to be packed with the PS-7000)	*2	No

*1 : When the printer server is Windows 95 platform, no Macintosh clients can be connected.

*2 : When the printer server is the Windows95/98 platform which is directly connected by Centronics or is connected by a network to the printers (BJ-W7000, PS-7000, AXIS), printers can be shared on the Microsoft network (NetBEUI). However, if the printer server is connected to the AXIS or to the PS-7000 by the network, the software such as LPR module, Pnconfig, etc., is required on the printer server side.

(4) Windows NT 4.0 platform as the printer server

1. To connect Macintosh clients, the printer server must operate under NT-Server OS. NT-Work Station OS is not bundled with the service (Print Server for Macintosh) for connection with Macintosh platform.
   To connect Windows 95 / 98 / NT clients, either NT-Server OS or NT-Work Station OS can be used for the printer server.
2. If the printer drivers are installed in the printer server, there is no need to install the printer driver in the client machines.
3. If the printer server is connected to the AXIS or to the PS-7000, PNCONFIG must be installed in the printer server. (LPR is not necessary to be installed, as it is included in OS.) The printer driver(s) are necessary to be installed in the client machine, only when they are not installed in the printer server.

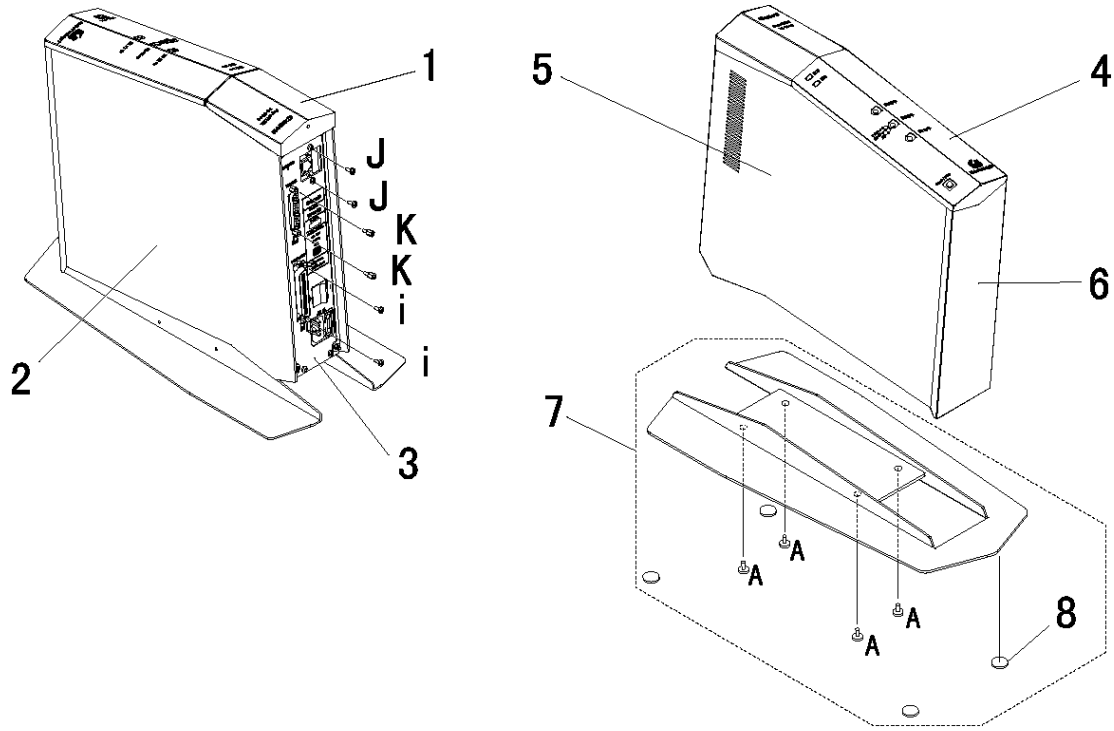
Client	Connection	Printer Server	Connection	AXIS	PS-7000	Connection	BJ-W7000	Driver	Other utility	Remarks	Operation Guarantee
Mac.	<EtherTalk+ Hub>	Win NT 4.0	Centronics					BJ-W7000 Raster driver (for Macintosh)			Yes
			10BaseT	Yes	Centronics						Yes
			Centronics		Yes	Centronics		WindowsNT4.0 AdobePS Printer driver5.1			Yes
			10BaseT		Yes	Centronics		Macintosh AdobePS Printer driver8.5.1			Yes
Win95	<10BaseT + Hub>		Centronics					BJ-W7000 Raster driver (for Windows95/98,NT4.0)			Yes
			10BaseT	Yes	Centronics						Yes
			Centronics		Yes	Centronics		WindowsNT4.0 AdobePS Printer driver5.1			Yes
			10BaseT		Yes	Centronics		Windows95/98 AdobePS Printer driver4..2.4			Yes
Win98			Centronics					BJ-W7000 Raster driver (for Windows95/98,NT4.0)			Yes
			10BaseT	Yes	Centronics						Yes
			Centronics		Yes	Centronics		WindowsNT4.0 AdobePS Printer driver5.1			Yes
			10BaseT		Yes	Centronics		Windows95/98 AdobePS Printer driver4..2.4			Yes
Win NT4.0			Centronics					BJ-W7000 Raster driver (for Windows95/98,NT4.0)			Yes
			10BaseT	Yes	Centronics						Yes
			Centronics		Yes	Centronics		WindowsNT4.0 AdobePS Printer driver5.1			Yes
			10BaseT		Yes	Centronics					Yes

Chapter 6

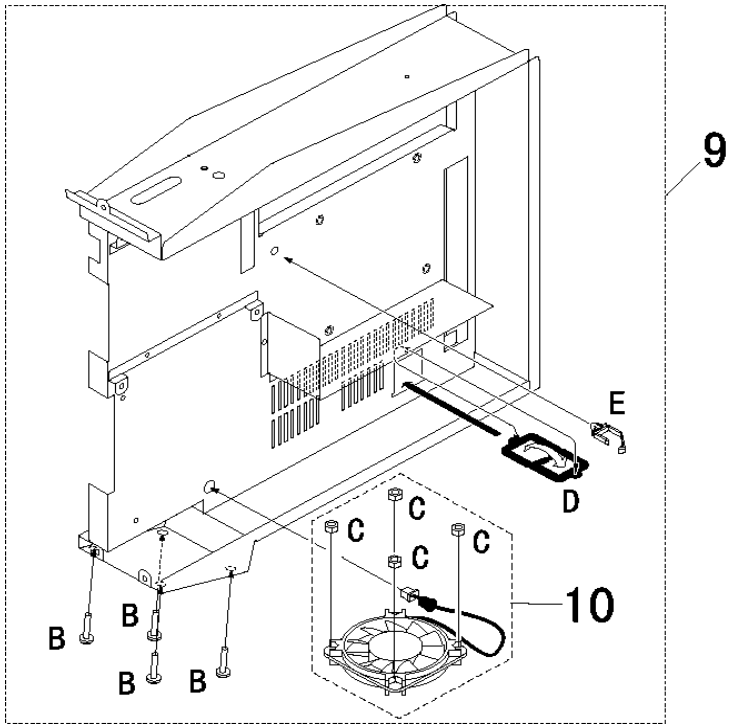
Parts Catalog

6. PARTS LAYOUT & PARTS LIST

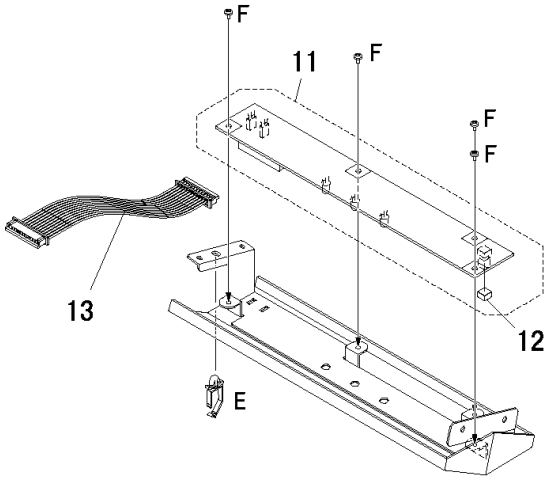
1.EXTERNAL COVERS



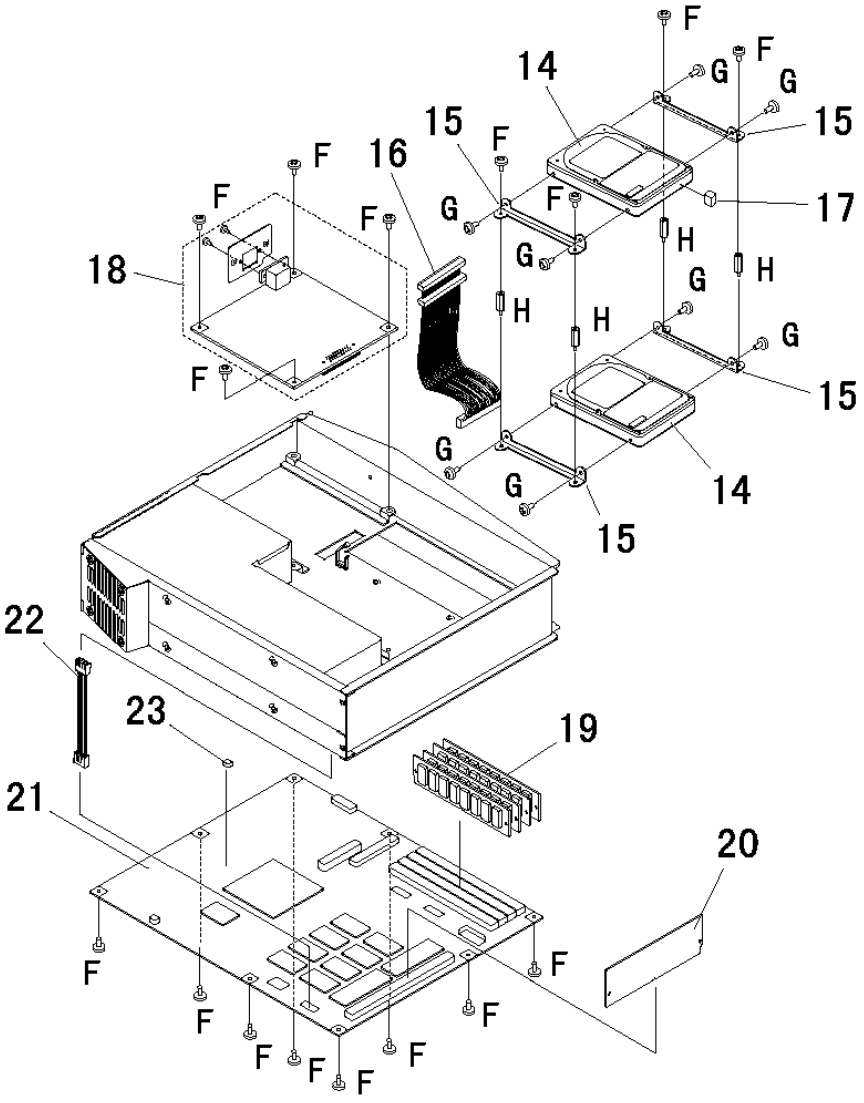
2. MAIN FRAME



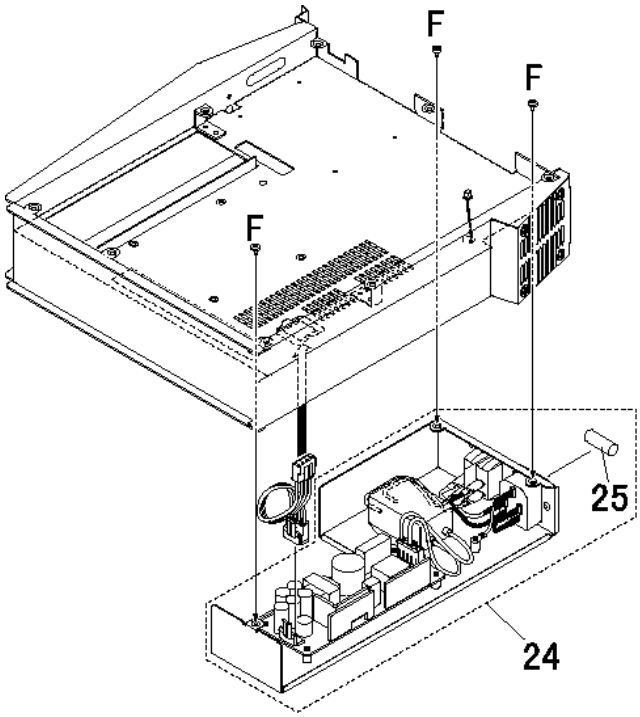
3. LED PANEL BOARD



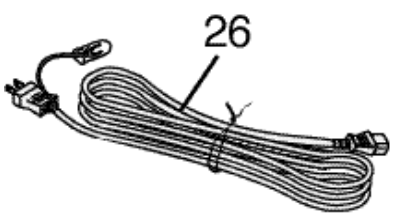
4. INTERNAL COMPONENTS

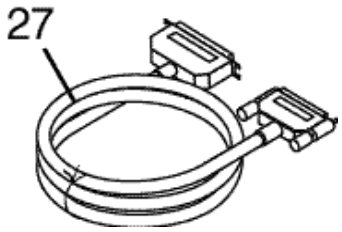


5. POWER SUPPLY UNIT



6. OTHER





7. PARTS LIST

FIGURE & KEY NO.	PART NUMBER	RANK	QTY	DESCRIPTION	REMARKS
1- 1	KY7-0003-000		1	COVER,TOP B, JP	
2	KY7-0005-000		1	COVER,LEFT SIDE	
3	KY7-0009-000		1	PANEL,REAR JP	
4	KY7-0011-000		1	COVER,TOP A, JP	
5	KY7-0006-000		1	COVER,RIGHT SIDE	
6	KY7-0008-000		1	COVER,FRONT	
7	KY7-0007-000		1	STAND	
8	KY7-0031-000		4	RUBBER,FOOT	
2- 9	KY7-0013-000		1	MAIN FRAME ASS'Y W/FAN	
10	KY7-0017-000		1	DC FAN ASS'Y	
3- 11	KY7-0022-000		1	LED PANEL BOARD ASS'Y	
12	KY7-0032-000		1	KNOB,CANCEL SW	
13	KY7-0014-000		1	CABLE,LED PANEL BOARD	
4- 14	KY7-0019-000		*	2.5 HDD UNIT 2.1GB TOSHIBA	PS FORMATTED
15	KY7-0020-000		*	BRACKET,HDD	*:2 or 4
16	KY7-0015-000		1	CABLE,HDD	
17	KY7-0018-000		1	JUMPER,HDD RECEPTACLE	SLAVE HDD ONLY
18	KY7-0023-000		1	NETWORK BOARD ASS'Y	
19	KY7-0024-000		**	MEMORY MODULE ASS'Y,32MB 60NS	**:MAX QTY IS 4
20	KY7-0025-000		1	KANJI FONT SIMM ASS'Y	JP ONLY
21	KY7-0021-000		1	MAIN BOARD ASS'Y	w/o EEPROM
22	KY7-0016-000		1	CABLE,MAIN BOARD POWER,5V	
23	KY7-0030-000		1	EEPROM, for MAIN BOARD,8P DIP	
5- 24	KY7-0026-000		1	POWER SPLY BOARD ASS'Y JP	
25	KY7-0028-000		1	FUSE,250V	For AC INLET
6- 26	KY7-0029-000		1	POWER CORD 100V JP	
26	WT3-0063-000		1	POWER CORD 120V US/CANADA/AS	
26	WT3-9501-000		1	POWER CORD 230V EUR	
26	WT3-9502-000		1	POWER CORD 240V UK	
27	KY7-0002-000		1	CABLE,PRINTER AMP36-DSUB25	
A	KY7-0033-000			SCREW,BIND HEAD M4X6,S	
B	KY7-0034-000			SCREW,BIND HEAD M4X12,S	
C	KY7-0035-000			NUT, M4,S	
D	KY7-0036-000			EDGE HOLDER,PL	
E	KY7-0037-000			WIRE SADDLE,PL	
F	KY7-0038-000			SCREW,BIND HEAD M3X5,S	
G	KY7-0039-000			SCREW,BIND HEAD M3X4,S	
H	KY7-0040-000			SCREW,HEX M3X15 ,BS	
I	KY7-0041-000			SCREW,PAN HEAD M3X8,S	
J	KY7-0042-000			SCREW,PAN HEAD M2.6X6,S	
K	KY7-0046-000			SCREW,HEX PARALLEL OUT,BS	

The above "F" screw is also used for screws not described in the diagram.